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Railway Age Gazette

FIRST HALF OF 1917—No. 3

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Railway Age Gazette

Volume 62

January 19, 1917

No. 3

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*Illustrated.

One of the reasons why the Interstate Commerce Commission ought to be given exclusive jurisdiction over rates is well

Another Reason for Federal Regulation

illustrated by the situation created on Monday of this week as to passenger fares in Illinois. The Interstate Commerce Commission had ordered the Illinois roads to remove the discrimination against St. Louis, Mo., and Keokuk, Ia., caused by the difference in the level of passenger fares in Illinois and the fares for interstate travel between Illinois and Iowa and Missouri and had prescribed 2.4 cents a mile as the reasonable rate. To protect themselves against the penalty for violation of the Illinois 2-cent fare law the railroads first applied to the federal court at Chicago for an injunction against its enforcement in order that they might put the rates approved by the federal commission into effect on Monday as ordered, but Judge Landis denied the petition. Tariffs increasing the rates in Illinois had been filed with the Illinois commission but had been suspended. On Monday, therefore, the roads were confronted with the mandate of the Illinois legislature prohibiting them from charging more than 2 cents per mile and an order of the federal commission to desist from charging less than 2.4 cents, unless they choose to reduce the interstate rates to 2 cents. To reduce the rates to St. Louis and Keokuk to 2 cents would require a similar reduction to other points to which the Interstate Commerce Commission, after an extensive investigation, has found 2.4 cents the reasonable rate, and would allow the Illinois legislature to regulate interstate passenger fares without an investigation. It was too late to ask the Interstate Commerce Commission to suspend its order until the roads can appeal the case to the Supreme Court. After the latter has called Judge Landis' attention to its decision in the Shreveport case it may be possible to put the commission's order into effect, but meanwhile the state of Illinois is allowed to nullify the act of the federal government and to discriminate in favor of state commerce against interstate commerce in spite of the Shreveport decision. The fact that in most cases of this kind the state rates are lower than those found reasonable by the Interstate Commerce Commission is one of the chief reasons why some

people prefer to retain in the states the authority over such matters, although few would deny that more weight should be attached to a decision by the Interstate Commerce Commission than to the action of a state legislature.

The general chairmen and officers of the four railway brotherhoods held a meeting in Chicago on Thursday of last week.

Brotherhoods' Soft Pedal Strike Talk

After the meeting a formal statement was given out in which it was said that no nation-wide railway strike is now contemplated by the brotherhoods and implied that anybody who asserted the contrary is an enemy to truth. There is a remarkable difference between this statement and those which came frequently from the same source during the first eight months of the year 1916. During that time, on every occasion when a spokesman for the brotherhoods could break into print, he announced that unless the railways granted all their demands they would tie up every line in the country. The more recent statement seems to indicate that they now have no intention of striking, either preceding or following the Supreme Court's decision regarding the constitutionality of the Adamson law. The very pacific attitude now assumed presents a striking contrast to the very belligerent one maintained until recently. What is the cause of this remarkable reversal of reform? The only explanation this paper can suggest is that the brotherhoods have decided, and no doubt wisely, that while Congress is considering the enactment of legislation to prevent strikes on railroads, is a good time to apply the soft pedal to talk about tying up all the railroads of the country. Meantime, however, it will be observed that the leaders of the brotherhoods continue bitterly to oppose the passage of any legislation which may, to any degree, restrict their right to strike. This clearly indicates that whatever may be their immediate purpose, they look forward to a time in the future when they expect to find the right to strike an important weapon in their armory. In the circumstances, it would seem that the pacific intentions which they now express should have very little influence on the course taken by Con-

gress. The bitter opposition which the brotherhoods make to the least restriction of their right to strike is perhaps the best evidence of the need for restricting it.

Both from the point of view of the investor and from the point of view of the manufacturer of railway supplies the announcement of the purchase by an American syndicate of \$15,000,000 10-year 6 per cent convertible notes of the Central Argentine is particularly interesting. England has been selling back to us great quantities of our own railroad securities, but there has not been a public market in this country for securities of South American railroads. English investors own very large amounts of South American railroad securities, with the consequence, of course, that the railroad supplies for most of these South American roads have been bought from English manufacturers. At present the English security market is closed to South American railroad companies, and apparently one at least of these companies has successfully appealed to American bankers to finance its needs. The 10-year notes are convertible into ordinary shares at par. The Central Argentine operates about 3,300 miles of road, including a main line running from Buenos Aires through Rosario northwest to Tucuman. The gross earnings per mile of line have been in recent years between eight and nine thousand dollars. While it is true that the present arrangement was made with the primary object of maintaining the sterling exchange rate—the proceeds of the sale are to be used to retire notes outstanding in England—if a market is created in this country for South American railway securities it is altogether likely that in time South American railroad companies will find it expedient to finance the purchase of and place the orders for equipment and supplies in this country instead of in England.

An ordinary public dinner is a function. The first two or three annual dinners of the Railway Business Association were perhaps merely functions. These annual dinners have now, however, graduated from the class of annual functions into that of annual events. They have, in fact, become events of great importance in the railroad world. They are no longer occasions when those interested in the railway and railway supply businesses gather for merely social purposes, break bread together, hear some good speeches and part. They have become occasions when railway managers, railway supply men, railway financiers, economists and public men gather to hear illuminating addresses on the most immediately pressing railway problems, and also to exchange views both inside and outside the dining hall on these subjects; and the large number of men interested in railway matters who gather for them naturally has suggested the expediency of conferences being held on the days preceding, on the days of and on the days immediately following the dinners regarding many important matters. For example, this week, because it is the week of the Railway Business Association dinner, there have been held in New York the annual meeting of this association, a conference of railway executives on the car service situation, a meeting of the Railway Executives, Advisory Committee, the annual meeting of the supporters of the Bureau of Railway Economics, and conferences and meetings regarding numerous other matters. The Railway Business Association has done a great work since it was organized in helping to bring about a better public understanding of the railway situation and a better system and wiser policy of regulation; but not the least important of the results of its activities are the meetings and conferences which have naturally, but to some extent unexpectedly, come to be held during the week of its remarkable annual dinner.

THE ENGINEER IN RAILWAY SERVICE

AT no time in the history of American railway development have the roads been confronted with such a variety of problems requiring a high degree of scientific knowledge and ability as now. Harassed by legislators and commissions who are enforcing regulations which reduce their incomes while at the same time increasing their expenses, the fact that they have been able to survive as well as they have is an indication of the replacement of earlier rule-of-thumb methods with those of more scientific determination. The future will increase rather than lighten these demands and will require, even more than the immediate past, the concentration of trained specialists on these problems as they arise. One is, therefore, surprised to note the relatively small number of college-trained men entering railway employ—a number far less than the importance of the transportation industry warrants.

There are several more or less fundamental reasons for this condition. One of these is the attitude of some railway officers toward technically trained men—an attitude not peculiar to the railways, but prevalent at one time in many industries. This attitude is illustrated by the recent remark of a general manager of an important railway, that if he had his way no civil engineers would be employed on his road, as he had found them too impractical. Although this may be an extreme statement, it nevertheless represents a sharply defined attitude toward engineers on the part of a considerable number of railway officers trained in the school of experience. While this attitude is not shared by the majority of railway men it predominates on a number of roads, particularly in the middle west, where the activities of the engineering department are frequently confined to problems of design and construction and where maintenance of way matters are handled directly by the operating department.

That this policy is not followed by the management of all roads is illustrated by the long continued practice on the Pennsylvania Railroad of handling all maintenance of way matters through an engineering organization, practically the entire personnel of which is technically trained, and of drawing nearly all of its operating and executive officers from this branch of the service. Promotions from the engineering into the operating department have also been increasingly frequent in recent years on the Baltimore & Ohio and on a number of other important roads. That a technical training does not unfit one for the solution of executive or operating problems, as the remark quoted above might lead one to believe, but, on the contrary, may be an aid to promotion, is demonstrated by the number of leading railway men who have risen through this branch of the service, including Samuel Rea, president of the Pennsylvania Railroad; L. F. Loree, president of the Delaware & Hudson; J. Kruttschnitt, chairman of the Southern Pacific; S. M. Felton, president of the Chicago Great Western; Howard Elliott, chairman and president of the New Haven; A. T. Dice, president of the Philadelphia & Reading; B. F. Bush, receiver of the Missouri Pacific; A. W. Thompson, vice-president of the Baltimore & Ohio; E. J. Pearson, vice-president of the New Haven; L. W. Baldwin, vice-president of the Central of Georgia, and numerous others who might be mentioned.

In view of such a record it is well to inquire why this feeling of opposition to technically-trained engineers exists on some roads. It must be admitted that there is some merit in the claim that many engineers are impractical when confronted with the problems of maintenance and operation, although probably not more so than the average man from any other department. It is unfortunately true that most engineers turn to construction work after graduation from college because of the greater immediate although lower ultimate financial rewards. There is also something of the romantic in heavy construction work, particularly in comparison with the monotony of routine maintenance. Again,

many engineers are unwilling to serve the apprenticeship in the maintenance of way department, which is essential to a full knowledge of the work, and if the opportunity comes for transfer to the higher positions in the operating department they do not have the requisite practical knowledge of the problems and fail, particularly when surrounded by skeptical associates from the school of experience.

However, the fault is not entirely with the engineers. If they are employed successfully on some roads, and it must be admitted that they are, the conclusion naturally follows that the roads on which they are not considered to have made good must be at least partially at fault. On those roads where they are not in favor it will be found almost universally that the engineers are given few opportunities to acquire practical experience outside of the construction department and that because of the limited avenues of promotion, the more ambitious men are forced to look elsewhere for advancement. On the other hand, on those roads where the engineers have made good they are welcomed in the lower ranks and opportunities exist for promotion as they acquire the necessary practical experience.

Largely because of the indifference with which the graduates have been received by some of the railways, the number entering their employ has decreased materially in recent years. This is also partially a result of the rapidly widening scope of activities presented to them and the greater demand for their services in other industries. This has resulted in the salaries paid by the railways falling behind those received by engineers for the same class of work in other industries, although many roads have been forced to increase materially the rates paid during the past year to obtain the men necessary to direct the work under way. However, important as the salary is in attracting men in the railway service, it is not the sole consideration, for those roads which offer their engineers definite opportunities for promotion have been able to secure and retain in their service all the men they desire.

One difficulty which has led to some criticism of college graduates on the part of some railway men has been the neglect of the universities to keep pace with the changes in railway conditions and to revise their courses of instruction to prepare their students more directly for the work they will be called upon to perform. Years ago, when the activities of engineers in railway service were confined almost entirely to problems of location, design and construction, the courses of instruction were prepared to fit the student for such work. Today, when the period of long extensions and heavy new construction work is largely drawing to a close, and when the problems of maintenance and operation are overshadowing those of new construction, the courses outlined for the students still cling in a large measure to the old standards. Most of the faculty members themselves have gained their practical railway training in the construction rather than the maintenance of way department. As a result not only is the student instructed primarily in the problems of construction, but he is encouraged to look for employment in this line of work rather than the maintenance department. If he enters railway service he seeks employment in the construction department, finds the work more or less temporary in character and the chances for promotion few and soon turns to some other field of engineering work.

The universities can do much to relieve the feeling which now exists regarding the graduates on many roads by revising their courses of instruction to conform more closely to the needs of their graduates who may have an opportunity to enter railway service. One western university has secured the co-operation of an advisory board of railway presidents to consult with and further the work of the engineering department. It is not advisable that instruction in the principles of design and construction should be discontinued, but the courses should be rearranged to permit more attention

to be paid to the problems of the maintenance of way and operating departments. Likewise the members of the faculty should be recruited more generally from those who have had practical experience in this department of railway service and are themselves familiar with its problems and its opportunities.

THE TENDENCY OF RAILWAY TAXATION

THE annual report of the Interstate Commerce Commission for 1915 showed that the total amount of taxes to be paid by railways, a very important item in their accounts, was a little less than 2 per cent less than the amount accrued in 1914; but the preliminary report for 1916 shows that the tendency to increase which has been sustained with substantial regularity since 1900 was only temporarily abated. The total amount of taxes fell off \$1,233,000 in 1915 as compared with 1914; but in 1916 the amount increased again by \$6,232,000 over that paid in 1915, and \$5,000,000 over the amount paid in 1914.

Owing to the large increase in total operating revenue and in net operating revenue in 1916, the percentage of each which was consumed in taxes in that year was less than in the preceding year, though the total amount paid was some \$6,000,000 greater. Even in 1916, when the bases upon which the percentages are computed were greater than in any year in the history of railroads, the percentage of total operating revenue consumed in taxes was greater than in any year except 1914 and 1915 and the percentage of net operating revenue represented by the amount paid for taxes was greater than in any year prior to 1912.

The percentage of gross earnings which was paid in taxes varied from 3.8 per cent in 1897 to 3.2 per cent in 1906 and in five of the intervening years was 3.2 per cent or less. From 1907 to 1916 the percentage varied between 3.1 per cent in 1907 to 4.3 per cent in 1916, and in 1914 and 1915 the percentages were 4.5 and 4.7, respectively.

The percentage of net earnings paid out in taxes varied from 11.7 in 1897 to 9.5 in 1906 and in four of the intervening years was slightly under 9.5 per cent. The percentage increased from 9.5 in 1907 to 12.7 in 1916 and in four of the intervening years it was higher than in 1916. The highest percentage reached was in 1914, when the railways paid 16.6 per cent of their net operating revenues in taxes.

The data of which these statements are a summary are presented in the accompanying table which shows the percentage of total operating revenue and of net operating revenue consumed in taxes in each year from 1897 to 1916 in-

	Gross earnings	Net earnings	Taxes	Per cent taxes to gross earnings	Per cent taxes to net earnings
1897	\$1,222,089,773	\$369,565,009	\$43,137,844	3.8	11.7
1898	1,247,325,621	429,352,345	43,838,224	3.5	10.2
1899	1,313,610,118	456,641,119	46,337,632	3.5	10.1
1900	1,487,044,814	525,616,303	48,332,273	3.3	9.2
1901	1,588,526,037	558,128,767	50,944,372	3.2	9.1
1902	1,726,380,267	610,131,520	54,465,437	3.2	8.9
1903	1,900,846,907	643,308,055	57,849,569	3.0	8.9
1904	1,975,174,091	636,277,836	61,696,354	3.1	9.7
1905	2,682,482,406	691,880,254	63,474,679	3.0	9.2
1906	2,325,765,167	788,887,896	74,785,615	3.2	9.5
1907	2,589,105,578	840,589,764	80,312,375	3.1	9.5
1908	2,440,638,832	729,844,540	84,555,146	3.5	11.6
1909	2,473,205,301	822,764,788	90,529,014	3.7	11.0
1910	2,812,141,575	929,930,215	103,795,701	3.7	11.2
1911	2,852,854,721	876,103,870	108,309,512	3.8	12.3
1912	2,906,415,869	871,005,294	120,091,534	4.1	13.8
1913	3,208,427,649	959,704,947	128,044,636	3.9	13.3
1914	3,127,729,588	847,313,797	141,318,519	4.5	16.6
1915	2,994,055,110	871,320,710	141,238,488	4.7	16.2
1916	3,414,609,658 (Est.)	1,166,560,759	147,422,107	4.3	12.7

clusive. The preliminary statement of the Interstate Commerce Commission for 1916 does not include statistics for the so-called small roads, nor for switching and terminal companies, which are included in the data for other years. The amounts involved in the calculation of the percentages

for that year have therefore been increased by the same percentage of increase which the inclusion of similar data to those omitted in the commission's latest report represented in the statistics for 1915.

These figures call attention in a striking manner to the increasing proportion of railway expenses which is represented in recent years by taxation. They also show that a large part of the increase in percentage has taken place since 1906. In fact, for a few years, beginning in the statistics presented with 1897, there was a decrease in the ratio borne to revenues by the amount of taxes. For the following years up to and including 1906 the percentage represented by taxation remained, with comparatively small fluctuations from year to year, on a substantial level. But since 1906 there has been an almost steady increase until the tendency received a check by reason of the abnormal revenues of 1916.

It cannot, of course, fairly be said that this constant increase since 1906 in the proportion of railway earnings that has been paid out in taxes has been due directly to the system of regulation inaugurated under the Hepburn law which went into effect in that year. The Interstate Commerce Commission is not responsible for the amount of taxes levied nor for the increase in this amount from year to year. But the increase in taxes is plainly a manifestation of the general tendency of public regulation since 1906 and of the state governments to assume an appreciable share in the regulation of railways even to the extent of putting upon them an unwarranted burden of taxation.

NEW BOOKS

Handbook on Wood Preservation. 74 pages. 6 in. by 9 in. Bound in cloth. Published by the American Wood Preservers' Association, F. J. Angier, secretary, Mt. Royal Station, Baltimore & Ohio, Baltimore, Md. Price, \$1.00.

The purpose of this book is to present in concise form the essential information concerning the preservation of timber which has appeared in the proceedings of the American Wood Preservers' Association and elsewhere during recent years. The book contains a chronology of the development of wood preservation in this country and data regarding the extent to which ties, piling and other timber used are treated, with maps showing the location of timber treating plants. The common processes are described together with the materials used. The book also contains a bibliography of wood preservation. It contains much valuable information regarding this construction material which is of particular value at the present time when timber is receiving special attention because of the high prices of other materials.

Steel Railway Bridges. By Edward C. Dilworth, designing and contracting engineer, Pittsburgh-Des Moines Steel Company, Pittsburgh, Pa. 185 pages, 12½ in. by 9½ in., illustrated. Bound in cloth. Published by D. Van Nostrand Company, New York. Price, \$4.

In the preface the author states that "It is the intention of this volume to supply practical data for the design and weight of steel for railway bridges." This aim is carried out consistently throughout the volume. One hundred and nine pages are devoted to plates containing weights, curves and general plans for girder and truss railway bridges, viaducts, swing spans and turn tables. The last ten pages give moment and shear tables. In the first third of the book, 54 pages are devoted to a discussion of practical considerations that have to do with design and detailing of steel structures. The book implies a thorough knowledge of structural mechanics and bridge design and is consistent in not entering into any theoretical treatment. On the other hand, many explanations are accompanied by formulae worked out with numerical examples. The specifications of the American Railway Engineering Association for steel railway bridges occupy 11 pages. The typography, sketches and plates deserve special commendation.

Principles of Railroad Transportation. By Emory R. Johnson, Professor of Transportation and Commerce in the University of Pennsylvania, and Thurman W. Van Metre, Instructor in Transportation in the School of Business of Columbia University. Size 6 in. by 9 in., 620 pages, 18 maps and 39 other illustrations. Bound in cloth. Published by D. Appleton & Co., New York and London. Price \$2.50.

This book is a revision of, or rather a new book based on, Professor Johnson's American Railway Transportation, which during the many years since its first appearance in 1903 has held an enviable position as one of the leading text books on the subject. The present volume, like its predecessors, is divided into four parts, the American Railroad System, the Railroad Service, the Railroads and the Public, and the Railroads and the State. The authors themselves speak of the scope of the book as follows:

"This volume is concerned with the transportation service performed by steam railroads. It does not discuss the engineering and other technical questions of railroad construction and operation, but describes the American railroad system, gives an account of the service performed by the different branches of the railroad organization, considers the business relations of the railroads and the public, and discusses the problems of government regulation. The book is a study in railway economics, and is intended to be an introduction to the general subject of railroad transportation, a volume that may profitably precede or accompany a more special study of a particular branch of the railway service."

To cover a subject as broad as this one in something like 600 pages is not exactly the easiest one for an author to undertake. In this case, however, the task has been extremely well done. The book is primarily meant for the newcomer to railway problems. It takes up each point, accordingly, from the bottom, and covers it completely. There are few if any portions of a problem that have been omitted, and in only a very few cases have the limitations of space prevented the authors from rounding out the discussion of a subject and leaving loose ends or incompleting thoughts that might give the "innocent" reader a wrong impression. For the railroad man and advanced student of railway problems the book will also have an interest because it is interestingly written, and will serve as a handy review of basic facts and principles.

There are a few more or less minor features in the book, however, that should not pass without criticism. A number occur in Chapter XII on Passenger Service. On page 195 the authors, in speaking of the operations of the Pullman Company, say: "Eventually, however, the large railroad companies will probably own and operate the sleeping, dining and parlor cars used on their several lines." We fear that many railroad men will be inclined to take issue with that statement. It is true, as the book says, that the development of large systems covering large sections of the country will to some extent encourage the ownership of extra fare equipment by the railways themselves. The authors apparently realize the advantages a road has of being able to draw on the Pullman Company for sleeping and parlor cars for seasonal demands. They have, however, seemingly forgotten the New Haven's experiences with its own extra fare equipment, and have possibly failed to realize the favorable position a large system with a favorable contract is in as to securing the latest and best Pullman equipment, and of passing it on as soon as better equipment has been built to supersede it.

On page 198 the statement appears: "It does not necessarily follow that the revenues derived from the larger traffic at lower fares will be more profitable to the railroads, but there are reasons for believing that the addition to the present passenger business of American railroads of a large volume of traffic taken at low fares would add to the net profits of the companies." Verily, a rather broad way to state so important a fact. It would almost appear that the authors of "Principles of Railroad Transportation" had

neglected to observe that the two cent fare laws in Illinois and other states have failed to encourage increases in railway passenger business. Possibly, too, they failed to remember what they have brought out so clearly in other chapters, namely, that in Europe where passenger fares are very low, the service is very poor and the passenger fares are purposely made low, the resulting losses being made up in freight rates, often twice as high as those in the United States.

How the World Makes Its Living. By Logan Grant McPherson. Published by the Century Company. 435 pages, with index. Price \$2.

Mr. McPherson has written a number of books dealing with various phases of railroad rates and railroad regulation, but while the present book, "How the World Makes Its Living," takes as its field the broad problems of the economic life of today, it does not deal specifically with railroad questions. Since, however, a knowledge of the economics of transportation must be founded on a general knowledge of broad economic principles, Mr. McPherson's new book is of special interest to railroad men and students of railroad affairs. The author says that the volume is not a treatise on economics. This is true insofar as there is no attempt made to pursue the discussion of the evolution of the institution of property, money, capital, wages, etc., through to a technical and comprehensive analysis of these phenomena, but only to state, in a simple and easily comprehensible way, the general principles. The book is made interesting through the use of specific examples illustrating the points that the author wishes to bring out. Especially interesting are the chapters on Organization of Business, Predatory Acquisition, and the Relation of the Government to Industry and Commerce. Mr. McPherson not only himself sees clearly the logical evolution which has resulted in so much of the business of the world being done by corporations, but he has succeeded in describing the steps in this evolution so clearly and simply that they should be comprehensible even to the man who does not know that there is such a science as economics.

The following paragraph is so condensed and yet so good a summing up of this process, that it is well worth quoting: "Thus the corporation is the latest step in that evolution which began in the pre-historic age with the division of labor and the co-ordination of effort. The self-sufficiency of the individual was succeeded by the self-sufficiency of the family and then of the community. For the self-sufficiency of the community has been exchanged the division of labor and the co-ordination of effort throughout civilization. This has brought the organizations of employer and employee, of the partnership, of the small corporation, and of the large corporation."

In the chapter on the relation of the government, Mr. McPherson, while deprecating the extension of political activities in the field of industry and commerce, comes to the conclusion that the nation should exercise such control over "the activities of its members as will insure their observance of those principles which through custom and law have been crystallized into the expression of what is designated as justice."

All through Mr. McPherson's book, both in the discussions of the relations between capital and labor, between government regulators and regulated industries, and between business organization and individual enjoyment of life, one is reminded of the testimony of the late J. P. Morgan before the Pujo money inquiry committee, to the effect that the underlying principle of the success of the Morgan firm was confidence. Mr. McPherson demonstrates by illustration after illustration that money is nothing but the counters by which units of value are measured; that "as results of the efforts of different men are different degrees of value, it follows that each should receive the results of the efforts of others in the proportion that the results of his efforts are of value to them."

Letters to the Editor

PREPARING FOR PROMOTION

CHICAGO, ILL.

TO THE EDITOR OF THE RAILWAY AGE GAZETTE:

Bemoaning, bewailing and belittling their lot may properly be said of the authors of some letters written by railroad clerks and published in your columns from time to time. I have been a railroad clerk for 17 years (for fear it may be inferred I am an "old horse," be it said I am in my 30th year) and had prospects of being a railroad clerk for 17 and some odd years more, had I not conceived what occurs to me is a unique plan, to "study away" from a clerkship to an ultimate official position.

My story is this: Some 14 months ago I realized the "sorrowful plight" of a railroad clerk and determined not to be a victim thereof. I selected what seemed to the next logical position for myself, which is chief clerk to an operating official. I first summarized my duties in detail and satisfied myself that I was performing them thoroughly and satisfactorily. Then I analyzed and summarized the duties of and the knowledge required by the chief clerk (my superior) in this general manager's office. Having done this, I first studied one by one the handling given by him of his routine duties (matters he handles regularly: each day, week or month), numbering 50 subjects and 216 statements and reports; and, second, I began the most important phase of the study by attacking the different departments reporting to the general manager's office with the object of gaining therefrom such knowledge as I judged my chief clerk should possess.

The car service department was the first to receive my attention. In order to study that department satisfactorily I divided it into two branches, namely, principles and rules governing (such as car service rules, etc., etc.) and statements and reports prepared and received. That department has been covered by studying (from a chief clerk's standpoint) one by one each principle and rule and each statement and report prepared and received. Next, I took up the study of a superintendent's organization (there being no official between the superintendent and the general manager on the road with which I am employed. In order to study that department thoroughly I prepared a chart of the entire superintendent's organization and called each position of that organization a unit. These units, or positions, I covered by understanding, from a chief clerk's viewpoint, each statement and report prepared and received. On this feature of the study I am now engaged and have covered 36 units, with many more remaining. After finishing this, I intend covering another department reporting to our office, and so on.

While I am still the same clerk as 14 months ago, nevertheless, as the result of my study I possess valuable knowledge, and, above all, the reasonable sureness of gaining my object ultimately has brought a shower of hope where gloom prevailed. It is my thought that perhaps the principles outlined above will be grasped by many ambitious but forlorn fellows, anxious to advance but scattering their efforts ineffectively in attempts to secure knowledge upon which to justify promotion. The principle is applicable to any position anywhere: Select a position of logical promotion, analyze it and study its duties and knowledge one by one.

Anticipating an attack along these lines I will say that my studying is done strictly outside of office hours and without interference with my present duties. The knowledge is gained by courteously questioning the people possessing it; then by study. I have yet to find the person

who is not glad to answer my questions, which questions, by the way, I try to make brief and to the point.

AMBITIOUS CLERK.

THE CHICAGO ELECTRIFICATION PROBLEM

CHICAGO, ILL.

TO THE EDITOR OF THE RAILWAY AGE GAZETTE:

The electrification of the railroads in the Chicago district is, in the first place, a diplomatic task. To electrify the roads in their present status would be wrong technically and an impossibility financially, but some way can be devised which will make it a great success from an operating and financial point of view. The diplomatic task lies in getting the railroads to co-operate in developing a plan for a Chicago terminal. The trouble with the Chicago railroad map is that it has grown without any plan and the result is a chaos of lines, with their crossings, recrossings, etc. To modernize them, the present conditions have to be untangled and systematized.

The mediums through which most of the forwarding of through freight and the transfer between roads are performed are the belt lines. There are 3 or 4 main and several smaller lines. The first step to simplify this handling of freight consists in a consolidation of these belt lines. This should be one of the first parts of the diplomatic task. Besides the great operating advantage and the saving in operating expenses, a patriotic duty would be performed, as it would surely also be of great value in military preparedness. An ideal solution would be for the newly formed belt line to take over all railroad operation, passenger and freight, in the Chicago district through trackage agreement with all the roads entering Chicago. This, however, would be on such gigantic scale that it would take years to harmonize all the different interests involved and to adjust the existing commercial strategic positions of a great many roads, etc. On this account it might be advisable to limit the functions of this new company at first to the usual belt line business, and to extend it gradually. The charter of this new terminal company should, however, be taken out to cover such a sphere of operation.

A plan should be studied and prepared, incorporating the complete scheme. The financing of this belt terminal company should not be difficult as all roads entering Chicago would be interested in it and the terminal bonds would be indorsed by each of them. At some convenient places on the outer belt, warehouses could be located in groups after a well studied plan, from which goods could be shipped and delivered to and from points outside of Chicago without any teaming expenses, and the goods for Chicago proper could be forwarded to a central or district freight house. These warehouses could be connected with each other by bridges to secure a convenient interchange of goods. The teaming in the loop district would thereby be greatly reduced and would afford marked relief to this congested district.

The next step could be made on a union freight station at some point. In this station the railroads could preserve their individuality if so desired, in receiving and delivering freight but the operation of the car movements should be done by the terminal company. To reach this station from some point on the belt line tracks, trackage agreements may be necessary, other railroad property leased, etc., gradually enlarging the terminal company's functions to the final scheme.

These improving performances will gradually lead to a regrouping of the passenger lines and so create a few important passenger entrances which will be freed to a great extent of crossings, so that electrification will be simple and inexpensive. Future passenger terminals should be built with track layouts of the through type, below street level. The Chinese wall, created through the track elevation should be avoided as much as possible in future improvements.

GUSTAVE E. LEMMERICH.

TRAIN DESPATCHING ON WESTERN RAILROADS

SAN FRANCISCO, Cal.

TO THE EDITOR OF THE RAILWAY AGE GAZETTE:

I have just read Mr. Watts' communication in your issue of January 5 relative to Form G, example 3, old code. He is entirely right in his views and states the situation as it actually exists. The Western Pacific is being operated under the latest revised code, slightly modified to meet local conditions. Old Form G, example 3, was not discarded. It would be difficult to always keep trains moving were we to be deprived of this form. However, to obviate possibility of misunderstanding, Rule 93 was changed to read:

"93. Within yard limits the main track may be used, protecting against first-class trains.

"Second-class and extra trains, including those created as per Example 3, Form G, must move within yard limits prepared to stop unless the main track is seen or known to be clear."

Because certain forms are not to be found in the code it should not necessarily follow that they are prohibited. One should use a little judgment and common sense and permit the use of such additional train orders as may be necessary from time to time. The code does not specifically provide a form to give one extra right over another, yet for anyone to contend that such movements are not often necessary, or that they are positively forbidden, is ridiculous.

The following forms of train orders not to be found in any book of rules are made use of daily by the Western Pacific. Were we to attempt to fix meeting points, trains would be seriously delayed nearly every trip. The 16-hour law has made the refinement of train despatching absolutely necessary:*

"Eng 35 meet two extras 7 & 91 East at Winnemucca then run extra Winnemucca to Gerlach with right over No 52 to Antelope. Wait at Pronto until 3 30 p m Gaskell 3 45 p m Venado 3 57 p m and Jungo 4 15 p m for No 52."

"Eng 16 run extra Gerlach to Winnemucca. Eng 25 run extra Winnemucca to Gerlach with right over Extra 16 East to Antelope not pass there until they arrive. Wait at Pronto until 11 10 a m Gaskell 11 25 a m Venado 11 37 a m and Jungo 11 55 a m for Extra 16 East."

"No 52 has right over No 51 Sulphur to Jungo and at Jungo."

The block system is, of course, the only proper solution of train movement problems, but it must be remembered that there are many roads which have not yet decided that they can afford it, and which can make the train despatching system answer their purpose admirably for some time to come; but they should give the matter of despatching more intelligent thought and supervision.

HARRY W. FORMAN.

CONTROL OF RAILWAY TRAFFIC IN SPAIN.—A Spanish royal order, under date of September 21, provides for the appointment of special committees to control railway traffic, with a view to re-establishing, as soon as possible, the normal and more efficient operation of Spanish railways. The committee will be under the direction of the Director General of Public Works, and will consist of the chief engineers of the several railway districts and delegates appointed by the various railway companies. The committee will give preference to the transportation of coal, natural fertilizers, and other goods of fundamental importance for industry and agriculture. Persons directly interested in railway transportation will be permitted to put proposals before the committees.—*Commerce Report*.

*The section of road referred to by Mr. Forman is entered in the Official Guide as follows:

Stations	Miles	Stations	Miles
Winnemucca	0	Antelope	44
Krum	7	Sulphur	57
Raglan	13	Ronda	62
Pronto	18	Cholona	71
Gaskell	24	Trego	80
Venado	29	Ascalon	90
Jungo	35	Gerlach	94

Railway Business Association Annual Dinner

Addresses by F. A. Delano, of the Federal Reserve Board, and A. P. Thom, Counsel for Executives' Committee

THE eighth annual dinner of the Railway Business Association was held at the Waldorf-Astoria on Tuesday evening, January 16. There were 1,350 members and guests, and George A. Post, president of the association, presided.

In introducing Frederic A. Delano, member of the Federal Reserve Board, Mr. Post said in part:

INTRODUCTORY REMARKS BY GEORGE A. POST

Responsive to the recommendation of the President of the United States, who entertains the deep conviction that the whole railway situation ought to be calmly and comprehensively reviewed, so that beyond peradventure there shall be no hindrance in the path of the railways whereby their service to the public may be diminished in its efficiency, or obstructed in their development, the Congress has created what is known as the "Newlands joint Congressional committee," the membership of which comprises five United States Senators and five members of the House of Representatives. Elaborate plans have been mapped out for hearings before this joint committee. There have been summoned to its bar to be heard representatives of the railroads, and of our national industries, regulatory officials (both federal and state), economists, financiers, and apostles of all manner of creeds for the purification and amelioration by regulation, or of government ownership of transportation means and methods. The plan and scope outlined are commendable for their breadth and thoroughness.

It is the high duty of these honorable gentlemen—and may Heaven endow them with the genius—to make true, impartial and statesmanlike deliverance of their findings. That this committee shall divest itself of all preconceived prejudices, patiently delve into all the intricacies of the involved problem confided to them for ascertainment, honestly weigh in the balance conflicting theories, and patriotically strive to create a system of regulation for the general welfare, rising above and ignoring all narrow, sectional or local desires for advantage over their fellow Americans, is the eager soul hope of our nation.

For the creation of this tribunal, the railways pleaded long and earnestly. In preparation for appearance before it, for months many of the executives of great systems, and the members of their staffs, have counseled together, bringing forth for common discussion the results of their wide individual experiences and profound research. Together they have taken cognizance of the difficulties and perplexities that beset them as administrators of tremendous public interests. Face to face they have taken note of the errors of the past. Their anxious and searching minds have appreciated the practices that engendered the whirlwind of public punitive determination, and, as the successors and legatees of those who sowed the wind, they have with clear heads and honorable purpose sought the path which shall rehabilitate their properties, win popular approval, and make the railroads the pride of the country, a bulwark of safety in time of national peril, and the faithful, adequate and efficient servants of its teeming activities from day to day.

ADDRESS BY FREDERIC A. DELANO

Because I am a man rather than a chameleon; because I can neither change my color nor shed the skin which I have worn for twenty-nine years of railway experience, I cannot forget, even if I would, a rather long and busy career, sometimes discouraging, but never uninteresting. Nevertheless,

while twenty-nine years of continuous railroad service has made me sympathetic with the railroad man's point of view and the difficulties which he has to encounter, my two and a half years on a government administrative board at Washington have certainly caused me to sympathize with the difficulties under which the Interstate Commerce Commission, and the state regulative bodies, find themselves laboring. Hence, my endeavor this evening will be to speak, not as a partisan, but as a citizen of the United States, eager to contribute his "bit" to the solution of a problem which concerns and should therefore interest everyone.

THE PUBLIC ATTITUDE TOWARD RAILWAYS

The attitude of our public toward railways may be said to have passed through three phases:

(1) The phase when every sort of inducement was given to railroad building, and when it was difficult to induce capital to embark in so hazardous an enterprise. Municipalities, counties and states taxed themselves to build railways, sometimes to supply much needed communication, but not infrequently to create or force competition with what already existed.

(2) The phase of competitive building which often degenerated into a sort of "hold-up," or blackmail. During this stage of development, lines were often built parallel to existing roads, creating little, if any, new business. The general public encouraged this sort of construction on the theory that in no other way could rate concessions be secured for important centers. This era of railway development was an era of speculation, an era in which the worst elements of railway management and control were given rein, and yet one cannot now justly say that the fault lay solely with the railway builders and projectors—it lay equally with those who guided public sentiment and framed the laws.

(3) The phase of public regulation and control which began approximately thirty years ago and has established itself with ever increasing definiteness as the years have advanced.

No fair-minded reviewer of the railway development of our country will fail to see that in the eighty or more years here represented, serious errors of judgment have been made, great wrongs committed and injustice done, both to the public and to the investor. If we had it all to do over again we could proceed with greater wisdom. Unnecessary duplication of railroads has alone involved a serious economic waste. This might have been avoided for the benefit of the public, and the saving used for the creation of lines where they are really needed. However, suggestions that railways should have exclusive charters between given points, or that there should be a territorial allotment to various railway corporations have never met with popular favor and, so far as I know, few railway commissions [those only of, say two or three states] have denied charters to new lines paralleling existing roads. No man in public life has been bold enough to advocate such a policy of exclusive rights.

It became more and more evident to the public that dependence on competition was decidedly unsatisfactory. Towns and cities favored by competition, fattened at the expense of others. However much they profited by their situation, they were eager for more profit and feared lest some other city might be receiving more consideration than themselves. Public regulation became a necessity and yet it seems only too apparent that today, after upwards of thirty years of government regulation, the public is unwilling to give itself wholeheartedly to the idea. The frequent and insistent

demand for improvement of internal waterways, not because of their inherent economy, but because they create competitive conditions which it is safely assumed the railway companies will have to meet, bears witness to the persistence of this notion of the necessity of competition as a regulator of rates.

The law creating the Interstate Commerce Commission was enacted in 1887. It marks an important epoch—a milestone in our industrial development as a nation. It was passed in spite of strong opposition of the railway interests of the country and may be truly said to represent the first successful and aggressive step forward in behalf of communities and shippers demanding redress of wrongs, whether actual or imagined. At the time of the enactment of this law there were general complaints alleging inequality of rates, their fluctuation, or that there were unfair discriminations as between cities or shippers. It is not strange that a commission, created with such a sentiment behind it, should have approached, and, I think I may fairly say, did approach the subject from the viewpoint of the shipper rather than that of the carrier. However, as the functions of the commission have developed, it is more and more recognized that the commission represents the entire public, no more the shipper than the carrier, no more the employer than the employee, nor even the customer and patron to the exclusion of the investor. It has taken years of experience to bring public sentiment in railway regulation to this point of view, and yet the propriety of it is not even open to discussion. Furthermore, as a business proposition, it should be apparent to any one that if railways are too harshly dealt with, or allowed to make but a scanty return upon their investment, less capital will seek investment in that channel, and desired improvements and betterments, additions and extensions will have to wait.

It is not strange that the public should have gone astray upon a subject whose understanding calls for so much study and technical experience. Mistakes have been made on both sides and the pendulum has swung from the extreme of encouragement to the extreme of repression of railway construction. It is now time to come to a saner and juster view—a view more nearly midway between the extremes which have heretofore been alternately accepted; for we must admit that the history of railway development is strewn with financial wrecks of railway corporations which later passed through the processes of reorganization and rehabilitation. Indeed, relatively few miles of the trunk lines in the United States can show a record from the time they were originally constructed to date, unbroken by an appeal to the bankruptcy court. One of the inevitable results of the era of fierce competition was the combining of railroads into large units. Considerable economic advantages often resulted from this process and there is no doubt that the public also was better served. Whether we approve it in theory or not, the tendency toward consolidation exists and must be dealt with.

The states of the Union have, not unnaturally, been unwilling to give up their control over rates and have sometimes shown their hostility to railways by severity of taxation, by exactions upon, or drastic rules governing the issuance of bonds or notes, or have, by burdensome legislation, taken away from the railways the ability to make economies in railway operation. The policy has been carried to such extremes as to become not only intolerable to the owners, but hurtful to the public, by making it more difficult to supply needed facilities. That it can be permitted to continue seems very unlikely, for its unwisdom and injustice is becoming apparent to everyone. And yet this does not mean that I wish or expect to see state sovereignty destroyed. The states should retain police power. Many rights of jurisdiction, even the right to intervene in important interstate cases, is unquestioned. That states, however, should so fix their rate schedules as to compel interstate business to conform to them,

especially when the relative volume of purely state business is insignificant, as compared to interstate, is a plan that can not be defended. If we were to carry the idea one step further and imagine that each town or county could fix its own regulations and rates, the absurdity of the proposition would become obvious.

In the 5 per cent rate advance case of 1914 it was shown that rates fixed by law in the states of Ohio, Indiana and Michigan absolutely tied the hands of the Interstate Commerce Commission in formulating a fair basis of interstate rates—and since then a careful analysis of the business transacted in these states shows that the purely state business is only seven to ten per cent of the total volume.

It is, in fact, just as impracticable to deal with interstate traffic through state regulation of rates upon railways as it would be upon those other highways of commerce, our rivers or lakes, or upon the ocean highways along our coasts. This remark does not mean that I believe that railways can or will be managed with disregard of community rights or states' rights. No corporation, certainly no railway corporation, can long ignore the wishes, much less the rights, of the communities it depends upon. There are too many ways in which a railway can be harassed and even punished. I have in mind certain notable cases where rates have been established by states below the average costs as fairly determined, and the result is that these states have secured below-cost rates at the expense of business of adjacent states less harsh in their treatment, or by reason of the general interstate business carried at remunerative rates.

If the government owned and operated the railways it is safe to assume that it would have to make rates regardless of state lines, for it could not allow one state to profit at the expense of others. There does not seem any more justification for making state rates without regard to interstate business under government supervision than under government ownership and operation.

MISAPPREHENSIONS WITH RESPECT TO RAILWAY QUESTIONS

The railways have emerged from the third or last phase of our public policy, the phase of railway regulation, hostile legislation and the like, in such condition that their situation today demands public consideration, not so much, perhaps, because the railway corporations are themselves asking for it, as because their inability to meet public demands requires that a study be made of the causes which have brought about that condition. Viewed from an optimistic standpoint there is immense hope in the fact that the utterances of many public men indicate a general impression that hostility to railways has gone far enough, and perhaps too far, and a belief that this hostility is already reacting upon the public in the shape of inferior service and diminished ability to give adequate facilities. But this will not, of itself, cure the difficulty. We must probe deep enough to find and, if possible, eradicate the canker which is gnawing at our vitals. My own belief is that the difficulty is largely inherent in a general misapprehension of some of the most fundamental propositions connected with the problem; propositions which have been so generally accepted, spoken from the rostrum, quoted in reports, newspapers, etc., that they have been often adopted as the starting point of railway legislation and regulation. It is, for this reason, worth while frankly to consider those fallacies, in the hope that we may approach the problem free from bias and prejudice, and without incorrect premises. It is often said that the American people are fair, that they decide public questions in the long run without prejudice and with justice to all concerned. I, for one, will go as far as anybody in maintaining that view, but I also claim, as I think every one must admit, that a prerequisite to deciding any question is a full understanding of it. That takes time; it requires an open mind and a fixed purpose to delve into

the subject thoroughly. As a prime requirement in this case, one must begin with an appreciation of the mutuality of interest in the subject. Just as the mismanagement of a railway hurts not only the employees, the stockholders and the creditors of that railway, but the communities along its line and the general public, so unfair or unwise laws, unfair or unwise regulation, or unjustly burdensome taxation hurts not only the employees, the stockholders and creditors, but also reacts to the injury of the public. There are an increasing number of people who now see this fact pretty clearly. This in itself is hopeful, but, as I have already said, that is only a beginning.

Without further introduction, therefore, I shall take up some of these more obvious misapprehensions, not so much to cover the whole field, but in order to place the suggestions before you.

The Cost Theory of Rate Making.—Among these misapprehensions is that in respect to what is known as the cost theory of rate making. It is often assumed by legislative commissions that rates are made or can be made upon the cost theory; and yet, any such proposal would result in great hardship to the public. In point of fact, all rates, like prices of commodities, manufactured articles, etc., are based upon a combination of two principles:—the cost of production and the value of the article produced, as determined by the demand for it. But even this does not state the whole case, because widely different things might be meant by "cost." Shall we, for example, define cost, as the average cost of moving freight from "A" to "B," or shall we include in that cost, not only the cost of the movement, but also its pro rata share of all general expenses connected with the maintenance of the property? Or, shall we go a step further and say that to these costs shall be added a pro rata share of the interest on the invested capital? Every competent manufacturer and merchant distinguishes between these items of cost, but in railway operation, because their investment is very large in proportion to their earnings, that is to say, the "turnover of capital" is small, and because many expenses of operation go on regardless of the volume of business transacted, these bases of cost differ more widely than in other enterprises. Any competent traffic man knows that the rates he makes should at least cover the bare cost of transportation movement. What proportion of the other costs it should include is largely a matter of business judgment and depends upon the value of the commodity transported. If, for example, the same rate were made on gold, silver and copper ore of great value, that was made on coal or iron ore of small value, it would not only be economically unscientific, but would mean either that the more highly valued article did not carry its due share of the burden or that the low valued article was overtaxed. The whole theory of the classification of freight which has been recognized and approved as a proper basis for railway tariffs, takes into account the value of the commodity as well as the actual cost of handling.

A Fair Compensation on the Investment?—Another misapprehension of true conditions has resulted from the early litigation against rates fixed by state legislatures. The only basis upon which the railways were permitted to invoke the assistance of the courts in enjoining schedules of rates which they believed to be unfair, was upon the theory that they were confiscatory—in other words, that the rates were so low that they would not permit the carriers a fair return upon the capital invested. The first of these cases, as I recall it, was that of *Thayer v. the Union Pacific Railroad*, enjoining certain rates promulgated by the state of Nebraska. The contention that the rates were confiscatory was sustained on the ground that the evidence showed that the rates were insufficient to yield a fair return on the capital invested. The court did not say, nor has it ever said, so far as I know, what it considered a fair return, and it is conceivable that

its views would depend somewhat upon the circumstances attending the investment, the risk, and other factors. This, and subsequent decisions led to an idea very generally entertained that the essential question to determine in passing upon propriety of a rate is whether it is sufficient to yield, say six or, perhaps, seven or eight per cent on the capital invested, and from this it followed that we must determine the capital actually invested. Nobody seems to have pointed out in any authoritative way that railroad construction could never have been financed, that private capital could never have been induced to enter so hazardous an enterprise without any government guaranties of profit, yet with a limitation as to maximum possible profits, either specified or implied. It has been stated more than once that something like ninety to ninety-five per cent of all manufacturing corporations chartered in the United States go into bankruptcy, or voluntary liquidation. The percentage in the case of the railways may perhaps not be so great, but it has certainly been very high. The essential difference between a railway and a manufacturing concern is that a railway, if it fails, however ill advised it may have been, is, in most cases, by force of its charter requirements, compelled to keep on doing business and absorbing additional capital. Indeed, it has come to be said of many railroads that, far from being assets, they are liabilities. There are hundreds of miles of railway line, especially branch lines, which cost far more to operate than they yield and which, therefore, are a liability and a drag upon their owners. The theory, therefore, that a railway corporation is entitled to earn only a fair return upon the capital actually invested in it, is a monstrous theory, if by fair you mean a limitation of profit regardless of the circumstances surrounding the investment. If this theory had been put forward when the capital was originally sought, little or no railroad building would have resulted. If we turn to other enterprises we find that mining or manufacturing concerns seeking new capital usually hold out alluring prospects that they will surely pay investors at least four or five per cent on the investment with fair prospects of much more if everything goes well. While I have no notion that it would be necessary to go to such extremes in railway financing, I am quite sure that if you offer the investor in a new railway enterprise only a reasonable certainty of, say five per cent, and no possibility of earnings in excess of six or seven per cent, no sane man would accept the proposal.

"Watered" Stock.—And this brings me to another phase of the same subject which has been harped upon by men who severely criticize railway methods, to wit, that of watered stock. I am not here so much to defend this method of financing, for it is open to the criticism that it is often used as a scheme of deception; but rather to present some elementary facts in connection with this overworked bugaboo, I may begin by asking how should railways be financed? How shall any more or less hazardous enterprise be financed? So far as I know, the theory of the joint stock company has developed only two or three methods. One plan is that in which no debt is put upon the property and where the joint stockholders own everything free from debt. Presumably, the stockholders of such an enterprise realize that their ownership in the company does not preclude the possibility of a debt being subsequently incurred, the obligations of which will inevitably take precedence over their rights. They, therefore, will not invest in the stock of such a company unless their profits are either very sure or likely to be large enough to be tempting. Another way of financing corporations, and one more or less employed in the early days of the railways, was to issue bonds at a high rate of interest, say seven, eight and ten per cent (not a high rate for railway bonds fifty years ago) or at a low rate, but at a considerable discount. This method was found very objectionable, because it placed a heavy fixed charge upon a young company

which had not developed its business and, therefore, usually brought the issuing company to the bankruptcy court. The third method, and that which has been most used in manufacturing, mining and other enterprises, and which has been generally used in electric interurban railway financing, is the method by which bonds have been issued at a moderately low rate of interest and stock issued in part, at least, as a bonus. In other words, an investor in bonds is given a more or less extensive block of stock as part consideration for the purchase. The promoters of the enterprise tell the investor substantially this: "If you will invest your funds in this enterprise we will give you a first mortgage bond which will guarantee you a return of, say five per cent upon your money. If the corporation does as well as we think it will, we want you to share in its profits and, therefore, we give you a stated amount of capital stock." The advantage claimed for this method of financing has been to make fixed charges as low as possible on the property during the infancy of the enterprise, and yet this method gives the original investor a fair share of the profits if the enterprise is successful. As someone cleverly remarked, it is a scheme for capitalizing "hope." Then comes the legislator ten or fifteen years later and says to the corporation: "You are not entitled to earn any interest on that stock; the stock was simply so much 'water.' You are entitled only to earn a fair return, or say the legal rate of interest on the capital actually invested!" The answer to that proposal is obvious. The mere statement of the case suggests it. It would have been a perfectly fair proposal if there had been some kind of an assurance from the state at the inception that the enterprise chartered by it would be guaranteed at least a moderate return on the capital invested at the same time that it was denied the right to earn more than a fair return on its capital. The two proposals must go together.

In explaining and defending this method of finance, my contention is that while something may be said against the evils which may grow out of the issuance of stock for less than a full cash consideration, it is fair to remember that it affords a simple, and perhaps the best way yet found of giving to enterprises financed by the issue of bonds and stocks, the elasticity in the drain it makes upon earnings which is absolutely essential to safety or future success. Every enterprise which, unlike those fathered by a beneficent government, must stand solely upon its own resources, if stand it does, must not be compelled to carry a uniform earning requirement. It must be so financed as to be able to pass through lean as well as fat years. If, as we see only too plainly today with the railways, an enterprise can hardly survive in the years of dull business, it enters the season of would-be prosperity utterly unable to meet the demands upon it. If the enterprise be related to the manufacture of some needed staple, its incapacity is a serious matter, not only for the owners, but for the public affected. If, however, it be a public service corporation which has been thus unable to provide for the demands certain to come upon it, the loss is more serious to the general public than to the owners. Thus, the public realizes, when it is too late, that poor or inadequate service costs it more than a liberal provision in the form of rates sufficient to provide the adequate tools would have cost.

Valuation of Railway Property.—A failure to understand the fundamental basis upon which enterprises can be financed had led to another and somewhat far-reaching misapprehension as to the importance of railway valuation. The nation has committed itself to a very large expenditure for making the valuation of all the railroads and, while I do not deny that some desirable information will come therefrom, that it will have any real bearing upon rate making, I do not expect. An impartial consideration of the matter will convince one that rates have not, as a matter of fact, been enhanced by reason of overcapitalization in the past. My

observation as a student of the question is that the tendency with overcapitalized roads has always been to reach after business and adopt methods which might even be termed unfair competition, for the very reason that they were burdened with heavy fixed charges which compelled them to secure a large volume of business or go to the wall. On the other hand, the transportation company that is conservatively capitalized, or undercapitalized, is the one which hesitates about cutting rates, about reaching after new business, about doing things which are more or less experimental and, perhaps, hazardous.

THE REMEDY

We have stated many difficulties—What shall we do about it—What is the remedy? First of all, it seems essential that all parties interested, and this means everyone, must approach the question in a dispassionate way and with a receptive mind; secondly, that an effort must be made to state the problem before us clearly and comprehensively, for, as every schoolboy knows, the first thing to be done in taking up any problem, for example, a problem in algebra, is to define it clearly. That done, the solution becomes comparatively easy. I venture to suggest some of the fundamental postulates of this problem:

The Interstate Commerce Commission is delegated by Congress to represent the entire public—that is to say, not simply one group against another group.

The railways, as a whole, must be self-sustaining; in other words, they must return a sufficient revenue to attract the requisite new capital to meet, year by year, the public requirements for additions, betterments and improvements.

There must be such publicity in matters of railway finance and expenditures that the whole public shall know, through their representatives, what is being spent, why it is spent, and how the expenditure is financed.

Unless we are to see railroad debt increase from year to year, we must not permit the issuance of interest-bearing obligations against perishing property without some scheme for the general amortization of such debt.

The general public is genuinely interested in avoiding, so far as possible, unwise railway expenditures, or expenditures on a useless duplication of railways, or on ill-conceived railway schemes which are likely to prove disastrous and hence tend to bring railway investments into ill repute.

The powers, functions and duties of the Interstate Commerce Commission should be carefully reconsidered in the light of world experience in organization. Much has been learned in the last half century in regard to the science of organization, hence due recognition must be given to fundamental and well established principles applicable to it. A board, commission, or court is well adapted for the settlement of policies, or for giving an effective interpretation to the law. On the other hand, it is ill-adapted, especially if it be large, for the handling of administrative and executive functions. It may, therefore, be found advisable to authorize the commission to delegate some of those functions as they are now delegated in all successful corporate enterprises.

The relations between capital and labor are among the most difficult of our time and they offer particular difficulties when applied to the problems of the public service. Without venturing to suggest a remedy, it is fair to assume as a foundation principle that, however great the interests of the employer and the worker are, the interests of the general public are even greater and, therefore, some way must be found—invented and developed if need be—to adjust these difficult questions with due regard to the rights of the employer, the worker and the general public.

Some fair adjustment must be found in the regulation of interstate transportation companies, as between the rights of local communities, towns and counties, cities and states, and the rights of the United States. Many of these questions are being determined with great clearness and force by the

Supreme Court of the United States, but the applications of the principles laid down to actual conditions yet remain to be made.

The public has a vital interest in, and should therefore encourage railway management to adopt methods which will result in economy and efficiency and the lowering of transportation costs wherever those methods do not bear down unfairly on either employees or the communities served. Much can be secured by co-operation and almost nothing without it.

IN CONCLUSION

After this somewhat depressing statement of the Railway Problem, let us look at the matter from its brighter side. What have the American people attained as a result of some eighty-five years of railway development? First, they have by far the largest railway system of any nation in the world; the miles of railway facilities in proportion to the population far exceed those of other countries; the number of units of service performed in proportion either to area or population far exceed those of other nations and, yet, in no other important country is the capitalization, or are the freight rates so low. In no other country has the progress in the handling of large transportation units been so great, and these, on land as well as on sea, are the chief factors in making for low transportation costs. The fact that under a scale of wages far higher than in any other country in the world we are able to give the consumer lower rates than in any other country is certainly a tribute either to our methods or to our management.

There is no evidence that even well operated government railways under such highly centralized authority as that of the German Empire give better service, considering rates, conditions of operation, etc. Indeed, while Americans cannot boast that their railways have yielded a handsome return to the investors, they can be proud of the service rendered, its cost, the low capitalization and the generally ascending scale of efficiency.

The amount of money which should be spent annually in a growing country like ours is at least calculation close to five per cent of the existing investment. This means that in twenty years every railroad must expend for improvements, betterments and additions to its plant, the full amount which it already has invested; and this does not include capital requirements for development of unoccupied territory, nor for refunding operations. In a country, such as ours, the railways cannot render satisfactory service unless they keep up with community requirements. This means they must have either a surplus or cash resources of their own, or the ability to borrow upon reasonable terms; in other words, they must have "credit." To sum up, then, the public is really more interested in the intelligent financing of these needs in the future than in any vain recriminations as to the past. The past, with its faults and its successes, is behind us. The future is before us and demands our attention.

ADDRESS BY ALFRED P. THOM

I thank you, Mr. President, for your cordial introduction, and for this wonderful opportunity. You have made it possible for me to stand tonight at the very center of commercial activity of the Western hemisphere. I address an audience fully representative of the broadest business experience and enlightenment of the American people. In such a place, before such an audience, there are certain fundamental economic truths which need no discussion; they may be taken as axiomatic.

Here it may be taken as conceded that the highest and most important interest of the American public is that its transportation facilities shall at all times be kept adequate to the public need. In view of the practical suspension of railroad construction into new territory, of the delays and embargoes that have affected American commerce, it may likewise be taken as conceded that as to that not even the present needs

of American commerce have been provided for, and that there can be no contention that the future of American commerce has been properly looked after and safeguarded.

It likewise may be assumed before an audience of this intelligence and experience that these facilities cannot be provided out of current earnings, but that the American public must look for what it needs to the securing of the necessary money on the credit of the railroads.

Let me therefore invite your attention for a few moments to the difficulties which confront the responsible railroad manager when he attempts to secure the credit that is needed in the public interest.

At the outset he is confronted by a system of regulation born in resentment and anger at great commercial abuses, and which contains no element except that of correction and punishment; it contains no element of encouragement and assistance. It does not properly balance discipline with encouragement; it pulls down, it represses; it does not build. Therefore, this responsible railroad executive must go to the investor with a concession of that, as a system of regulation which has been adopted.

What must he admit when he goes to this investor? He must admit that when the investor enters this field of commercial enterprise he goes into a field where he has lost all control over his revenues because they are fixed for him by the system of regulation. Not only that, but he must admit that they are controlled and limited not by one comprehensive, wise and complete governmental authority, but by many diverse, unco-ordinated and irreconcilable governmental policies and authorities. He must further admit that his expense account is beyond his control, because that is fixed for him by the demands of labor, by the economic conditions affecting all he buys, and by the same unco-ordinated and diverse public power of regulation.

With this condition of regulation and with these admissions, he approaches the investor whom he must attract and whom he cannot compel.

With what else is he confronted? A great war in Europe has made all that country a borrower instead of a lender; that great field of financial supply has been taken from him. In vast areas of the American continent also there is no supply of credit to the railroad. For example, one of the most important railroad systems that serve the South recently being able to trace the ownership of a block of one hundred million dollars of its bonds through the income tax provisions, found that but three and one-half million dollars was held in the South. The same, in some like proportion, is true of the West. So that there are two vast sections of the country practically withholding their credit from the railroad, from the provision of railroad facilities for the American people. With European credit withdrawn, with credit not supplied by these great territorial reaches of the American continent, the railway manager comes to one little section of the country as a place from which he must derive the means of supplying the needed transportation facilities of the American people.

But what else confronts him? He has had withdrawn from him that kind of capital that is willing to make adventure in the hope of large gain. He has no longer an opportunity to appeal to the speculative capital of the world. That is an inevitable result of regulation. You can no longer capitalize hope or faith to the investor in railroads. All you can capitalize is the meagre charity that is meted out by the politicians of the country.

But there is still a larger difficulty which confronts him, and that is that the value of the property in which he invests his money is being cut down by denials to that property of elements of value which are conceded to every other kind of property.

The value of property that grows out of its earning capacity is not only a universal attribute of property, but the real and essential attribute of value, the thing that makes men want

property—the capacity to earn from it. This is denied by an important political faction in this country. The value of property in railroads as a going concern, the value of the business which successful railroad men have brought to their properties, the value that they have made by creating a neighborhood to business, the value that they have, because they can bring return on fair rates from a large volume of business, all that is being denied by important men having the ear of a large part of the American people.

What is the consequence of that to the investor who may choose an investment, who may put it in a business that is not regulated, who may put it in a business the returns from which are not limited by law, and who is invited to put it in a property the returns from which are not only limited, but the very value of the property itself denied a universal attribute of property?

With that condition confronting this industry, essential to the well-being of the people, can you blame the responsible executives of American railroads, that they have put their case with earnest insistence before Congress and the country? Can you wonder that, conscious of their responsibilities, they have invited an examination of what the public interest requires, and have come forward to portray a situation with which they are finding an increased difficulty of dealing?

I do not disguise from myself that the situation is a difficult one. I do not disguise from myself that there are strong and entrenched interests which will be loth to surrender advantages which they have; that there are selfish interests which will not willingly surrender what they have acquired and will not look in a broad and comprehensive way at the great problem and measure it simply by the public interest.

But we are not without encouragement. There are great men in public position today, who are willing to look at the problem in a comprehensive and patriotic way. The President of the United States has had his attention arrested; he has recommended that the whole problem be studied in a calm and statesmanlike way, in the light of the twenty-nine years of experience that we have had with regulation. We are having an attentive hearing by an important committee of Congress. We have seen the interest of the American people aroused. They are giving attention and consideration to this matter as never before. All over the country meetings like this with calm and deliberate purpose are studying the problem from the standpoint of the public interest, and we have the historic fact of great triumphs in sound thinking and righteousness whenever the people become correctly informed. So tonight with all our difficulties before us, recognizing the tremendous task which we have, we are not without encouragement; not without hope that the problem which we present in a calm and patriotic way, offering to measure it simply by the public interest, will in time, a short time I hope, be recognized by the patriotism and the statesmanship of the American people, and that we will get relief for this fundamental interest which the public so greatly and so essentially requires.

Events and the development of public thought have now brought us to the stage in which basic purposes affecting railway regulation must be precisely defined, and declared, I believe that many—perhaps most—thinking men in all the states have come to realize that a re-adjustment is urgently needed. It appears to be true that an overwhelming majority of men in official station at Washington appreciate the necessity of dealing with the subject in some effective way. I trust and believe that every member of the Joint Committee on Interstate Commerce, which is investigating the malady and will write the prescription, is convinced of the need for a real remedy.

If in that situation we are to emerge from the phase of diagnosis and move on into the zone of cure, it is essential that the several elements of society affected should, through

their representative men, subordinate minor differences and let their minds meet on a high plane of patriotic aspiration and statesmanlike endeavor.

It seems to be possible to state certain things on which agreement is already manifest.

SAG IN INVESTMENT AND GROWTH

First—The fact that the rate at which existing lines are being developed and new mileage is being constructed is not in a proportion approaching that which was an indispensable factor in the commercial and agricultural growth of the past. This is nowhere denied.

Second—That commerce is even now being inconvenienced and impeded by lack of transportation facilities, and there is no assurance, under existing governmental methods of regulation, that transportation facilities will hereafter be adequate and sufficient for the reasonable requirements of the commercial public.

Third—That to provide adequate transportation requires the constant input of large amounts of new capital, which can only be obtained through credit.

Fourth—During the period of diminishing railway expansion, and of inadequate facilities on existing lines, a condition has arisen which makes other public utilities and the industrials a more attractive field for investment than steam railways. Nobody disputes that enterprises other than the roads have been obtaining a larger proportion than formerly of available new capital, and a very much larger proportion than the railroads.

Fifth—Investors and those who advise them specify, as the reason for their change of preference, the transfer of control over expenses and receipts from the owners to various agencies of government, including semi-governmental wage boards, and the absence of any co-ordination of the several governmental agencies in a way to concentrate the authority and to fix the responsibility for financial results. In some quarters it is asserted that this frame of mind of investors has been deliberately caused by the railway managers through public declaration of impairment of railway credit; but those who express this view cannot deny the fact and must appreciate that the truth must be set forth in railway reports and neither can be nor should be concealed from investors and their bankers, nor do they indicate how the railway managers are ever to obtain relief from any adverse condition except by telling the public the real facts.

Sixth—In the existing system of federal regulation, the act of Congress creating the commission contains no clause explicitly placing upon the commission responsibility for the establishment and preservation of proper railroad credit or for so regulating rates in relation to expenses that investments will be adequately attracted.

Seventh—Even if the Interstate Commerce Commission were by statute made responsible for the aggregate financial results of its own orders and of the federal laws, it could have no effective control of the situation so long as the authority is not completely federal, and state authorities continue to regulate rates of carriers which do an interstate business and to control, one state conflicting with another, the issue of securities. Few now profess to see advantage in the exercise by the state of the power of supervision over security issues. Nobody, so far as I know, denies that in regulation of rates the conflict between the different states and between the federal and state authorities occasions waste, loss and injury to the whole nation, but there are some in certain states who cling to the view that the state should regulate rates on hauls within the state. It seems reasonable to ask of these advocates that they present an affirmative plan for meeting the conditions as they exist in the nation as a whole for dealing with the essential question of railway credit, and for maintaining in a comprehensive way, with equal distribution of burden and without conflict of policy or purpose, the in-

strumentalities of the nation's commerce. An adequate solution from any source will be welcome.

RESULTS THE TEST OF REMEDIES

Indeed, I have the satisfaction of being able to say, with the authority of the railway systems which I represent in this matter, that we are more concerned with results than with the pride of opinion; that if economists or bankers or shippers or members of Congress can propose a remedy which will cure the disease, the fact that the successful idea originates somewhere else than with ourselves will not give us the slightest pang of jealousy or tinge of regret. We have said with deep sincerity that we invite the use of one single yard stick in testing the remedies which we propose, and that is the public interest. In the same spirit we hope all others will invite the application to any amendments or substitutes which they may bring forward this same yard stick; that is, whether their proposal will attract investment into railway enterprises and restore railway growth to the rate which is essential for national development, national trade and national defence.

TO FIX RESPONSIBILITY BY STATUTE

Nobody within sound of my voice or within reach of the printing press needs to be reminded of the remedies which have been laid tentatively before the Joint Committee of Congress on behalf of the railways. We think the act to regulate commerce should lay upon the Interstate Commerce Commission the duty as well as confer upon it the power so to control the relation of income to outgo as to leave an adequate surplus as a basis of credit. We think the Interstate Commerce Commission should have exclusive supervision over the issue of securities. To that end we think railway charters should be federal. We think that, in order to insure equality of commercial opportunity to all the people and equality in the distribution of the burden of maintaining at a standard of high efficiency the facilities of a universal commerce, the act should make clear that Congress has empowered the Interstate Commerce Commission to regulate all rates, state as well as interstate, of carriers which do an interstate business.

These are the fundamental ingredients. We believe that if the country neglects by these or other measures to fix the responsibility for financial results, regulation will fail and the government will be forced to provide transportation out of the tax levy. We believe that if these or better measures, well chosen to promote the same purposes, are speedily adopted the American people will have equipped themselves with a beneficent agency of prosperity and will have done much to secure the blessings of national security, of civic harmony and broad commercial opportunity.

BUSINESS MEETING AND RESOLUTIONS ADOPTED

Preceding the annual dinner, there was the regular annual business meeting, at which George A. Post was re-elected president and the following were re-elected vice-presidents: W. H. Cottingham, W. B. Leach, E. B. Leigh, Henry Elliot, J. S. Coffin, Irving T. Hartz and J. C. Bradley.

The following resolution was then adopted:

CONGRESS AND REGULATION

With satisfaction and hope we observe the course pursued by the several elements in the Congressional inquiry into railway regulation. The Joint Committee on Interstate Commerce recognizes the gravity of the situation. Comprising some of the most experienced legislators in this field, the committee has disclosed an earnest purpose to grasp the points of view of those who offer proposals, and to devote time, energy and concentration to interchange of ideas. We congratulate the railways on their leadership, at once fair, alert, and profound, before the committee and in public discussion. National thanks are due the large number of busi-

ness associations and eminent economists who have made it known that in response to questionnaires of the Joint Committee and of the railways, they are organizing material for presentation as evidence. We gratefully acknowledge the cooperation of those bodies whose resolutions, referenda and publications are responsive to our suggestions, of industrial and association executives who have transmitted to us expressions for use as testimony, and to thousands of individuals who have given us their influence by signing our proposals. Growth of public solicitude and conviction during the past year has been rapid and progressive. Congress can command popular approval for a well-considered and equitable solution.

RESPONSIBILITY

When a regulatory tribunal sanctions increases in rates it is common for bills to be introduced abolishing the commission. When a commissioner identifies himself with encouragement to railways as one of the aims of regulation, his re-appointment is often opposed in the confirming branch. Commissioners should be protected against such attacks. They tend to deter able men from accepting appointment and to weaken the independence of incumbents. The legislative body which creates a commission should fix responsibility for policy upon itself, not upon the commission. The law should define the aims of regulation. We favor a federal provision placing upon the Interstate Commerce Commission the duty of permitting such rates as will attract investment to the average road.

SECURITY ISSUES

Diffusion of stocks and bonds more widely at home and abroad would enlarge the enlistment of capital for railways, promote amity and cooperation in dealing with railway problems by increasing the number of those financially interested, and stimulate thrift among the people. Federal certification that specified requirements have been complied with would give confidence to many in this and other countries. We favor exclusive federal supervision of the issue of securities.

JURISDICTION OVER RATES

New law-suits involving points distinct or seemingly distinct from those previously adjudicated continue to befog the zone between federal and state jurisdiction over rates. Where the Interstate Commerce Commission has not explicitly taken jurisdiction over a given sphere some states continue to act, often with the effect of nullifying federal regulation. Where the commission has exercised its powers and the Supreme Court has upheld both statute and decree, bills with energetic support are urged for repeal of the provision and hence restoration of state control. A provision is needed in this respect to make comprehensive and effective the present prohibition upon discriminations. We advocate an unmistakable provision of the act to regulate commerce which shall formally affirm the authority of the Interstate Commerce Commission to embrace all rates which affect interstate commerce.

RAILWAY EARNINGS

We invite attention to the transitory nature of large railway earnings and the danger of mental arithmetic which estimates the revenue of a semi-decade by multiplying into five the earnings in the best year. There is no more warrant for testing railway resources by the best year than by the poorest. The peak of load today may become the valley of depression tomorrow. During the last two or three months of the calendar year 1916 operating expenses were growing at a faster rate per cent than operating revenues.

COST STATISTICS

Referendum No. 19 of the Chamber of Commerce of the United States, dealing with prevention of strikes and lock-outs, is now being voted upon by our members at large for guidance of the General Executive Committee in recording our association. One of the measures specified in the referen-

dum is a permanent division under the Interstate Commerce Commission to compile statistics for use of arbitration boards. We earnestly urge that any plan which may be adopted by Congress shall contain this feature. Compiled under the commission, the information proposed should include intelligence for the arbitration board concerning the effect of any proposed finding upon the financial condition of the roads affected, and in the same process keep the commission constantly and exactly advised of all cost factors which must be considered in estimating future total expenses and adjusting rates thereto.

ECONOMIC CLUB OF WASHINGTON

The subject of "Regulation or Control of Railway Transportation" was discussed by five speakers at the second annual meeting of the Economic Club of Washington on January 15. Senator Francis G. Newlands, chairman of the Joint Committee on Interstate Commerce, discussed briefly the investigation being conducted by that committee, saying that his own mind was rather fully made up in advance as to the principal questions to be considered and that he did not think it proper to discuss them at this time. He emphasized, however, the importance of some action by Congress to prevent the recurrence of the emergency which confronted the country last summer at the time of a threatened strike of the railway train employees. He said it is a reproach to civilization that no means has been obtained to settle such controversies by reason instead of by force and that it is significant that the labor organizations consider it necessary that society shall submit to the possibility of such a great calamity as a strike in order that they may be absolutely free from restraint. Senator Newlands also said that he hoped one result of the investigation would be a perfection of a system of co-ordination of rail, river and ocean transportation.

Professor W. Z. Ripley, of Harvard University, said he had been told at one time that some railroad officers regarded him as a dangerous man, but that the railways have now moved forward and occupied his trenches. He said he heartily approved of the efforts being made by the railroads to secure a transfer of the regulating power of government from the competing and conflicting jurisdictions of the states into the single jurisdiction of the federal government. He said that the present situation in railway regulation is an almost impossible one and that the railways are well within their rights in appealing for relief from this unfortunate condition of affairs. He gave many examples of inefficiency in state regulation and urged the importance to the public of demanding adequate service instead of cheap service. "We have been trying for the last ten or fifteen years," he said, "to make the railroads do something with nothing. As a result, there has been a cramping of development." He also urged the encouragement of a greater measure of co-operation among carriers, which the government has been trying to prevent by the anti-trust law. This, he said, would prevent useless duplication of service and enable more efficient handling of equipment.

Frank Trumbull, chairman of the Railway Executives' Advisory Committee, discussed the reasons for exclusive federal regulation of railroads and the importance of an improvement in the present system of regulation. Discussing the labor question he said the railroads want to pay fair wages to all of their employees—not merely part of them, but that the lack of elasticity in rates makes it impossible for them to do as other business institutions do. He cited the fact that the largest steel company in the country has within ten months raised the wages of its employees 33 per cent, but said that that company can, and does, pass on to the consumer this increased cost of production. The railroads are paying for part of this in the increased price of steel which they cannot pass on to the consumer, nor are they in a position to advance

the wages of their own employees. "Either the government should free railroads from the artificial limitations placed upon their revenues," he said, "or the government should assume responsibility for the maintenance of transportation by legislation, which adequately protects the public interest."

Oscar T. Crosby, an engineer who has been especially active in electric railway development, gave the following parody on the Lord's Prayer to illustrate the position of the railroads before Congress:

"Our Congress, which art in Washington, hallowed by thy name. Thy statutes run, thy will be done, in the States, even as it is in the District. Give us this day our reasonable rate, and forgive us our valuations as we forgive those who evaluate against us. Lead us not into bankruptcy, but deliver us from Gompers; for thine is the wisdom, the power and the glory, until next election."

Milo R. Maltbie, former public service commissioner of New York, advocated the policy of state regulation and said the trouble with the credit of the carriers is that they have abused it in the past. Frederick G. Howe, United States Immigration Commissioner at New York, advocated government ownership of railroads.

RAILWAY LEGISLATION IN CONGRESS

The following bills and resolutions affecting railways have been introduced in Congress:

S. 7726. By Mr. Brandegee, January 6. To Committee on Interstate Commerce. An amendment to the Panama canal act to carry out a suggestion, made by the Interstate Commerce Commission in its annual report, that Congress should confer upon the commission authority to permit a continuance of railroad ownership, control or operation of water lines under circumstances in which the commission believes such convenience is in the interest of the public. The bill amends the act to provide that if the commission shall be of the opinion that such service by water other than through the Panama canal is being operated in the interest of the public and is of advantage to the convenience and commerce of the people, *or* that such extension will neither exclude, prevent nor reduce competition on the route by water under consideration the commission may extend the time during which such service may continue. The present law uses the word "*and*" where "*or*" has been substituted in the new bill.

H. R. 19,779. By Mr. Tilson, January 8. To Committee on Interstate and Foreign Commerce. Contains same provisions as S. 7726.

S. 7770. By Mr. Lewis, January 9. To Committee on Interstate Commerce. Amends section 15 of act to regulate commerce to give Interstate Commerce Commission authority over the furnishing, distribution, exchange, interchange, return, joint use or rental of cars.

H. J. R. 336. By Mr. Carlin, January 10. To Committee on Judiciary. "That the effective date on and after which the provisions of section 10 of the act entitled 'An act to supplement existing laws against unlawful restraints and monopolies, and for other purposes' approved October 15, 1914, shall become and be effective, is hereby deferred and extended to January 8, 1918."

H. R. 16,733. By Mr. Adamson, passed on January 15, provides that all actions by carriers subject to act to regulate commerce for the recovery of all or any part of the scheduled charges for any service subject to the act shall be begun within three years from the time the cause of action accrued, provided that any such action may be brought at any time prior to July 1, 1917, if such action would not then have been barred by some statute of limitation except for this act.

H. R. 563, by Mr. Rayburn, to regulate the issuance of securities was called in the House on January 15 on consideration of the unanimous consent calendar, but was objected to and passed over without prejudice.

Reconstructing Union Pacific Bridge at Omaha

Old Spans Replaced by New Superstructure Shifted into Position Laterally in Short Time, Establishing a Record

THE renewal of four spans of the double track bridge of the Union Pacific over the Missouri River at Omaha, Neb., was accomplished by rolling the old spans transversely onto pile pier extensions, at one side and shifting in new spans which had been erected previously on falsework along the other side of the bridge. This method has been applied previously in other structures, but in this case the four spans have an aggregate length of 1,000 feet, and the new spans combined weigh 3,850 tons. In consequence this performance sets a new record both as to length and weight for this method of bridge renewal.

The bridge carries a very heavy traffic, there being an average of 300 train movements per day. In addition to the trains of the Union Pacific operating between Omaha and Council Bluffs, this bridge carries all freight passenger trains

iron plates riveted together with heavy cast iron caps over the top of each cylinder. The two easterly spans were blown down shortly after completion and the east one was not rebuilt but was replaced by a trestle.

In 1887 this bridge was replaced by a double track structure built by George S. Morrison, under the direction of Virgil G. Bogue, then chief engineer of the Union Pacific. In this second structure the main river crossing consisted of four through truss spans of substantially the same length as in the old bridge, but staggered so as to be supported on new piers placed midway between the old ones. The approaches at each end of the second bridge consisted of deck truss spans of substantially half the length of the old spans, thereby making it possible to use one of the old cylinder piers at each end of the bridge as an intermediate support with a third one

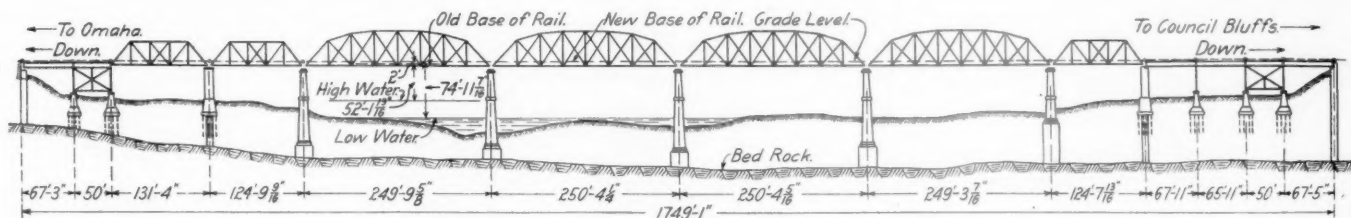


The Four Main Spans of the New and Old Bridges

between Omaha and points east on the Chicago & North Western, the Chicago, Milwaukee & St. Paul, the Chicago, Rock Island & Pacific, the Wabash, the Chicago Great Western and several trains of the Chicago, Burlington & Quincy. There are also numerous switching movements between Omaha and Council Bluffs and Union Pacific Transfer. The spans recently replaced were built for double track but, with the increasing weight of locomotives, it became necessary some time ago to restrict operation over this bridge to a single track. The rapid increase in the volume of business made it

serving as a new east abutment. The old west abutment was also made use of in the new structure with such changes as were necessary to make it suitable for a deck span.

The river spans of this second bridge were double-intersection pin-connected Whipple trusses 246 ft. 27/8 in. long subdivided into 11 panels. In addition to carrying two tracks, a driveway on each side 12 ft. 1 in. wide was cantilevered outside of the trusses. This driveway was subsequently removed. The piers under these spans were built according to conventional designs for ashlar masonry river



General Elevation of the Bridge as Rebuilt

necessary to arrange for new spans which would permit the use of unrestricted double-track operation across the structure.

THE PREVIOUS BRIDGES

Considerable historic interest is attached to this bridge, as it is one of the oldest crossings of the Missouri River, the new structure, with the exception of the piers, being the third to occupy the site.

The original structure was started in 1869 and opened for traffic in 1872. It was constructed under the direction of T. E. Sickels, chief engineer of the Union Pacific, and consisted of 11 spans 250 ft. long, all composed of thorough single-track Post type triple-intersection trusses supported on piers consisting of pairs of iron cylinders 8 1/2 ft. in diameter, spaced 19 ft. center to center. These were made of wrought

piers. They are 8 ft. wide and 35 ft. long at the top, not including the cylindrical ends. The usual starlings were carried for some distance above high water line. All of the piers were founded on rock except the first one from the west end in the west approach.

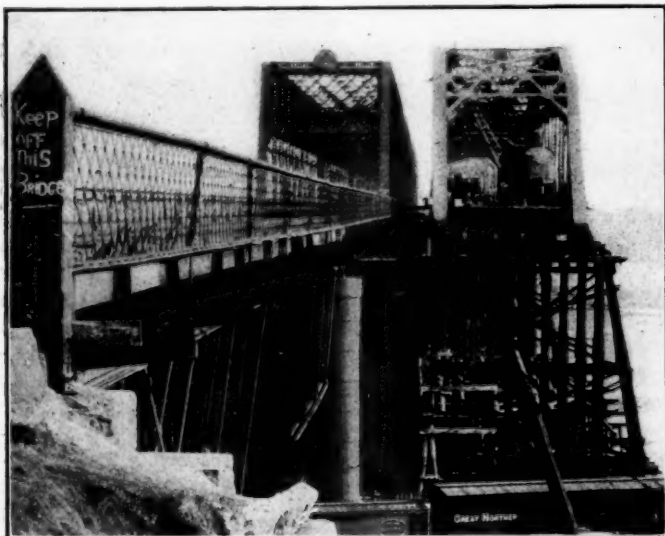
THE NEW BRIDGE

The present reconstruction involves the complete renewal of the superstructure and the partial renewal of the substructure for the approaches. No change was necessary in the substructure for the river spans. The latter vary from 249 ft. 3 in. to 250 ft. 4 in., the total distance between end piers being about 1,000 feet. These spans have pin connected curved-chord Pratt trusses. The top chords and end posts are of typical box section, laced on the lower side. The

bottom chords are made up of eye-bars in all panels, the trusses being pin-connected at all joints. Tracks are spaced 13 ft. center to center with side clearances of 7 ft. 6 in. from the center line of tracks. The vertical clearance is 24 feet from the base of rail. The usual construction is followed in the design of the floor system, stringers being spaced 7 ft. center to center for each track. To accord with modern practice and loading, the new floor is 2 ft. deeper than the old one, a difference which was necessarily made up entirely by raising the tracks across the bridge.

The new approaches differ materially from those replaced, but it is interesting to note that use is made of two of the original cylinder piers. These are being transformed into solid piers by enclosing each pair of them in a steel plate case filled with concrete as shown in one of the accompanying photographs. The new construction is being supported on pile foundations surrounding the old piers. The new east approach will consist of a steel viaduct with deck girders 8 ft. center to center and consisting progressively from the east end of a 65-ft. 11-in. span, a 50-ft. tower span and two 65-ft. 11-in. spans and one through riveted Pratt truss span 120 ft. 8 $\frac{3}{4}$ in. long. Commencing at the west end, the west approach will consist of one 65-ft. 11-in. span, a 50-ft. tower span of the same construction as in the east approach and

versely at the mid-level with two stories of cross bracing. The temporary piers each consist of five bents united to form rigid structures. As a means of insuring a thorough unity between each masonry pier and the temporary piers up and down stream, the latter were connected by cables and girts passing by each side of the masonry piers. The tops of the



West Approach, New Main Spans on Temporary Piers

followed by two through riveted Pratt truss spans 129 ft. 5 $\frac{3}{4}$ in. and 120 ft. 8 $\frac{3}{4}$ in. in length respectively.

FALSEWORK AND ERECTION DETAILS

On account of the heavy traffic it was imperative that the plan adopted for erection be the one which offered the least interference with the regular use of the structure. It was concluded that this would best be accomplished by erecting the new spans complete on falsework and timber pier extensions in a position parallel to the existing bridge on the downstream side and to provide timber pier extensions on the upstream side of the structure, on which the old spans could be shifted out of the way, as the completed new spans were moved into position on the piers.

The falsework comprised two separate features; that necessary for the support of the spans during erection, which was removed as soon as the spans could be swung, and that serving as temporary piers as shown in several of the accompanying photographs built in line with the existing river piers on which the new and old spans could be supported when not in place upon the masonry. The falsework was made up of frame bents supported on pile bents which required piles 60 to 80 ft. long. The posts of the frame bents were of a single length but were sash braced both longitudinally and trans-



The Temporary Piers

temporary structures were also built to the same level and top width as the stone piers.

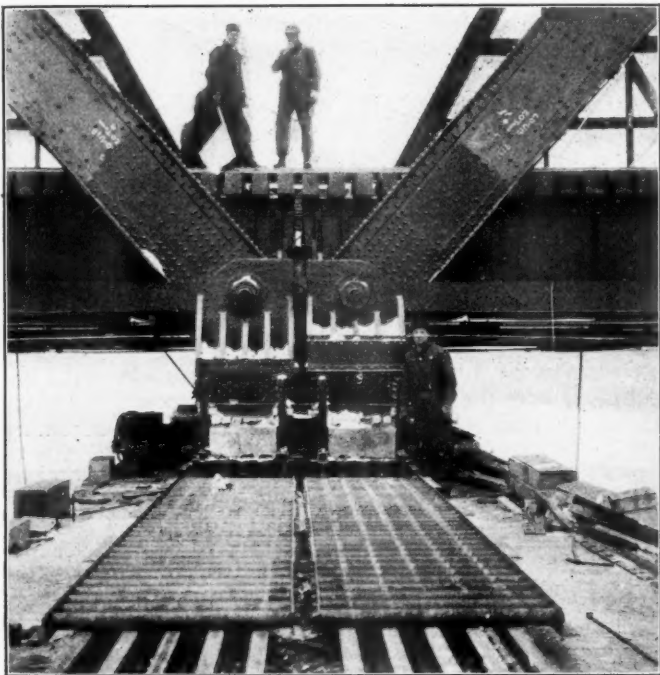
All piles used in the falsework supporting the steel work were driven from two barge drivers by the bridge company. An approach trestle was built to provide access to the downstream falsework from the main tracks at the east end of the bridge so that the equipment for the erection of the frame bents and the steel work could be set out from the main line.



Jacking Cylinder Piers Built in 1869

The decision to use the erection method outlined above, in advance of the steel fabrication, permitted the embodying of details in the end bearings for the superstructure, which were especially adapted to the transverse rolling of the spans and to the jacking necessary to release the rolling facilities after

the shift had been completed. As seen in one of the accompanying photographs the cast steel shoes of the two trusses bearing on a single pier are supported on a grillage consisting of four girders parallel to the pier, continuous from truss to truss and extending some distance beyond on each side.



Rolling Rig for New Spans

The girders of each group are connected by diaphragms and batten plates to form a rigid unit construction and are pierced at each end by horizontal pin holes by the aid of which jacking frames may be attached. The girders are of sufficient strength to support the span clear of the bearing when



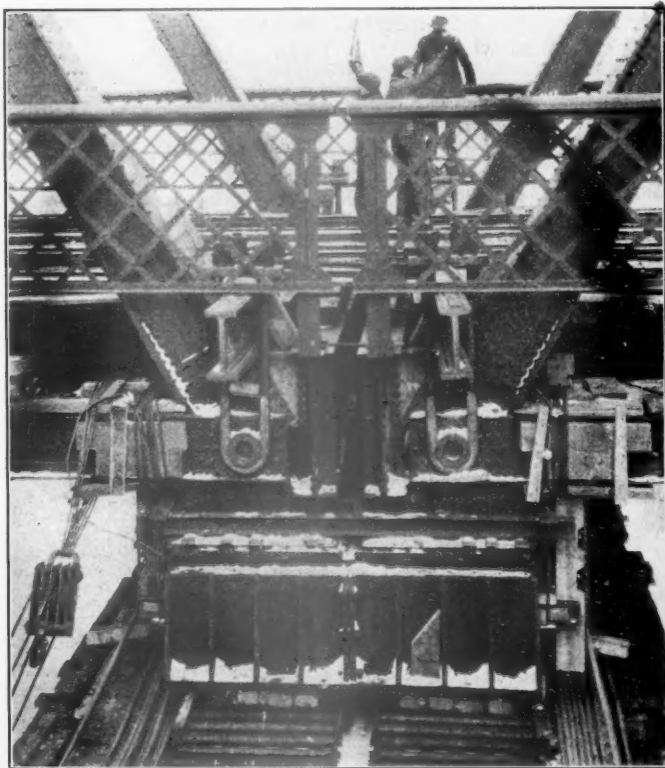
New Spans Showing Hoisting Engines and Lines for Moving the Bridge

suspended from these jacking frames at each end. After the spans were placed in position on the masonry piers these grillages act simply as bearing shoes for bed plates.

As the need of lifting the old spans, to place the necessary rails and rollers under its shoes had not been anticipated in

the design, the jacking up of the old spans proved a rather difficult problem. It was accomplished by swinging the ends of the spans from U-bolts passing under the ends of the end pins, these U-bolts being suspended in turn from jacking beams crossing over the tops of the end bearings just inside of the end floor beams. This detail is also shown in one of the accompanying photographs. As the pins were short, special nuts or bushings had to be provided to receive the U-bolts. It was necessary to suspend the bearing castings from the shoes by bolts attached to rails passing through the bearings.

The rollers as shown in several of the accompanying photographs were arranged in nests by means of bars to which they were secured at each end to insure perfect alinement. The loads of these spans were transmitted to these rollers through lines of rails, five for each set of rollers or ten for the top of each intermediate pier. The rails underneath the rollers were placed with heads up, while those between the rollers and the bridge bearings had the heads down. To facilitate the placing and removal of the rails they were arranged in



Rolling Rig for Old Spans

three lengths with splices near each end of the permanent piers.

As the most important feature of the plan was the movement of the four spans of both the old and new superstructure as complete units, all details of the end bearings were arranged in a manner that would insure united action during the movement. At all expansion joints in both the new and the old structure the two bearings coming together over the pier were clamped together so that longitudinal movement was temporarily eliminated.

THE MOVING EQUIPMENT

The movement was accomplished by means of 2-in. ropes reeved through four-sheave blocks into eight-part lines. One block of each set was attached to a snubbing post at the upstream end of the temporary piers and the other block was secured to the end of the span. One complete set of these tackles was provided for each end of each of the spans. In the case of the old superstructure the blocks were lashed to the

ends of the bottom chords, while in the new spans they were secured to pins at the ends of the bearing grillages. The 2-in. ropes from these tackles were run to hoisting engines standing on the new spans, one engine being provided for each pier or five in all. This plan necessitated four tackles from each intermediate pier and two at each of the end piers, but as the old and new spans were not moved simultaneously, it was necessary to handle only two lines on the intermediate hoisting engines at a time. As shown in one of the accompanying photographs the lines passed from the winch heads on the hoists to snatch blocks lashed to the portal bracing, thence down through the floor to other snatch blocks, and then out to the four-sheave blocks at the ends of the piers. This picture also shows that the engines were blocked up solidly from the track with struts to take up the reaction caused by the tension in the lines.

To insure control of the spans during the movement, a four-part wire cable hold-back line was provided at each pier to connect the spans with a timber anchored to the downstream end of each temporary pier. The line from this tackle which was passed around the drum of the hoisting engine was out-hauled while the movement was in progress and in-

bridge floor overhead who immediately dropped his flag. This signal was relayed to the center of the bridge, where the head signal man stopped all the engines by lowering his flag.

The bridge was closed to traffic to make the change shortly after 11 a. m., on December 23. At 11:25 the movement of the old superstructure was started and by 12 o'clock it was out on the falsework clear of the masonry piers. About 20 minutes' work was necessary to roll back the roller nests released from under the old span, change the ropes on the hoisting engines, etc. With these changes made, the new span should have been in place in another 30 minutes except for the unlooked-for failure of two of the hoisting engines because of foaming boiler water. After an ineffective effort to overcome this trouble the lines were shifted so that the two disabled hoists could be released and the lines from the two end piers run to the winch heads on two locomotive cranes which were stationed at the ends of the bridge. This change consumed considerable time, but the new spans were moved to final position by 4 p. m.

Owing to the difference in the floor thicknesses of the old and new spans, the track on the latter when moved into place was approximately 2 ft. higher than the track on the adjoining



The Old Spans Moved Clear of the Piers Ready to Shift in the New Spans

sured a measure of control by the use of the brake on the drum. To overcome starting friction, jacks were set up in horizontal or inclined positions against the ends of the spans to assist the hoisting engines to start the movement. As these jacks could not be set up readily a second time after the spans had moved some distance, it was necessary to start the spans by the use of the hoisting engines alone, following any intermediate stop in the movement. This was accomplished without difficulty.

To insure a unity of action in the hoisting engines spread out over a distance of 1,000 ft., a carefully planned system of signals was provided. A signal man with a red flag was stationed at each pier on the floor of the structure to be moved with two men at the center pier. A head signal man stood at the middle of the new structure in clear view of all the hoisting engines. Upon the striking of a gong all the signal men raised their flags and the engines were started simultaneously. Bridge men stationed on each pier observed the action of the rollers and bearings as the movement took place and in case of any difficulty called to the signal man on the

approach spans. This difference was overcome partially by releasing the rollers and rails under the bearings of the outer ends of the two end spans, but principally by jacking up the adjoining ends of the approach spans. To reduce the delay to the traffic to a minimum, no change was made immediately in the intermediate bearings of the new superstructure, as the rolling equipment was of ample strength to carry the train loading in addition to the dead weight of the bridge. For the release of the rollers and rails, the spans were raised and lowered by means of 500-ton hydraulic jacks working on jacking frames at each end of the bearing grillages.

Track crews were held in readiness to close up the track as soon as the bridge ends were brought to grade and signal men bonded the joints so that automatic signals were restored to operation immediately, the rails for the entire length of the new spans having been bonded complete in advance of the change. Traffic was restored at 9:39 p. m. Every detail of the movement was carried out as planned and save for the unfortunate difficulty with the boiler water the closing unquestionably would have been completed according to schedule.

OLD SPANS TO BE REUSED

The old spans are to be dismantled without the use of false-work by cantilevering from the new structure. The members will be removed by a traveler working from the top chords of the new bridge. After the removal of the floor system the upstream trusses will be taken down while supported from the downstream trusses and the new bridge. Then the downstream truss will be removed in a similar manner while supported from the upstream trusses of the new structure. As the old spans are in good condition they will be supplied with a new single track floor system and will be used elsewhere as single track spans of the same length as at present.

The design and construction of this bridge has been handled under the direction of E. E. Adams, consulting engineer of the Union Pacific System, at New York City; R. L. Huntley, chief engineer of the Union Pacific, and W. L. Brayton, bridge engineer at Omaha, Neb., the American Bridge Company having the contract for both the fabrication of the steel and its erection.

DEPRECIATION AND VALUE OF PUBLIC UTILITIES*

By Charles C. James

A farmer invests \$5 in pullets by way of starting himself in the business of producing eggs for the market. For each pullet he pays \$1, getting five for his money. Now hens lay ten dozen eggs every year for five long years, and after that they lay no more, neither are they good for other purposes, being entirely too old, even to stew. Certain critical farmers and poultry raisers may take issue with this statement, but the criticism is technical and beside the point, and we shall ignore it.

Eggs sell for 25 cents a dozen, and it costs \$2.25 a year to keep a hen, so at the end of the first year our farmer has sold 50 dozen eggs for \$12.50 and paid out \$11.25 for expenses, leaving him \$1.25 in hand. Being a far-sighted individual, he takes stock of his finances in a broader way than merely to count hens and dollars on hand. He estimates that each of his hens has one year less to live than when it was a pullet, and for this reason is less valuable. One year gone out of five means that each is one-fifth less valuable; i. e., \$1 (the original cost of each hen) divided by five years (the life of each hen), means that each hen-year is worth 20 cents. The five hens have depreciated 20 cents each, and of his \$1.25 on hand he finds that 25 cents represents profit and \$1 a partial liquidation of his original investment.

Certain college professors would tell him that this \$1 does not belong to him or to his hen business, but is a trust fund that must be placed in escrow, kept separate from the hen business and called a depreciation fund. But this is not so.

Part of his capital goods has been consumed in producing consumption goods, which in turn have been converted into money. To keep his capital intact, enough of that money to equal the cost of that part of the capital goods that has been consumed should be reinvested in the hen business—not tied up in a stocking and put under the mattress, nor even turned over to a savings bank to earn 3½ per cent compound interest as long as more productive use for the money can be found in the business. So our farmer buys another hen for his dollar and spends his 25 cents profit, which is 5 per cent on his original investment, in riotous living.

The second year he secures from his six hens 60 dozen eggs, which he sells for..... \$15.00
His expenses for the six hens, at \$2.25 each, are..... 13.50

Leaving for depreciation and profit..... \$1.50
As he has six hens on which to set up depreciation, based on a life of five years for each hen, his depreciation charge must be.... 1.20

He has left a profit of..... \$0.30
Per cent of profit..... 6

He now has \$1.20 to reinvest in the business—and here

we come face to face with a complication that spoils the beauty of our problem, but in doing so it is not different from the complications that arise wherever else the question of depreciation has to be considered. Our farmer cannot re-invest his entire accrued depreciation in hens, since hens do not sell in fractions, so he buys one additional hen at \$1 and is compelled to hold 20 cents in the treasury idle, just as every business is compelled to hold dormant, or nearly so, a part of its resources, which, if dollars could be earmarked, would in many cases be found to be part of its depreciation fund.

The second year our farmer secures from his seven hens 70 dozen eggs, which he sells for..... \$17.50
His expenses for the seven hens at \$2.25 each, are..... 15.75

Leaving for depreciation and profit..... \$1.75
Depreciation is 1.40

He has left a profit of..... \$0.35
Per cent of profit..... 7

He now has on hand in his depreciation fund \$1.50, but from this he can again buy only one additional hen, leaving 60 cents to lie idle.

The fourth year he secures from his eight hens 80 dozen eggs, which he sells for..... \$20.00
The expenses for the eight hens at \$2.25 each are..... 18.00

Leaving for depreciation and profit..... \$2.00
Depreciation is 1.60

He has left a profit of..... \$0.40
Per cent of profit..... 8

Each year our farmer has taken stock of his enterprise and has conserved out of income enough to keep the original money investment intact. This is sound finance and must always be the first consideration in any enterprise. Many good accountants have maintained that our farmer would be justified in spending a part of his depreciation fund during those years when the rate of return was below the average because there would come years when it would be above the average, when he could make up the deficiency. But this is not sound in principle or practice and probably will some day be declared unlawful.

In order clearly to understand the significance of the fact that the rate of return on the money investment is not constant in company with the value of the investment itself, which must be kept constant, let us digress here to consider a few fundamentals:

The capital investment in any enterprise is measured in dollars and cents, first for the purpose of the exchange that takes place when the industry is acquired, and second, for the purpose of stating the investment in the accounts, so that we have come to think of invested capital in terms of money; but fundamentally this is dealing with the shadow and overlooking the substance. Invested capital, in the true sense of the word, is not money, but hens, or trolley-cars, or ferry-boats, or anything else in the way of production goods devoted to the purpose of turning out consumption goods.

The productiveness of capital goods is a physical affair, so that while we say from the standpoint of sound accounting that a hen whose egg-laying life is half gone is worth only half what it was when its egg-laying life began, yet this conclusion is in no wise based upon the physical productiveness of the hen, which may still lay just as many eggs and just as good eggs as it did when it was a pullet. No one would think of contending that old hens' eggs should sell for less than young hens' eggs, yet this was just what the Interstate Commerce Commission said when it came to determine the rate which should be charged ferry passengers for crossing the North River on an Erie ferry-boat.*

*In its refusal to permit increased rates on the New York-Jersey City ferry of the Erie (37 I. C. C., 103), the Interstate Commerce Commission has the following to say: "Respondent, however, insists that interest should be figured on the original cost. It argues that in order to maintain a going business when the original investment is not being decreased by retirement of capital, interest on the entire investment must be earned in addition to an amount sufficient for the proper purpose of a depreciation fund in order to yield a proper return. Following our decision in *Lum v. G. N. Ry. Co.*, 33 I. C. C., 541, we are of the opinion that the accrued depreciation should be deducted from the original cost or inventory value of the property for the purpose of arriving at a proper basis for a return."

*From an article in the December, 1916, issue of the Journal of Accountancy.

North River ferry-boats are very unlovely craft, and no stretch of the imagination could bring one to think of them as providing a service de luxe that would justify a charge proportioned to the elegance of the appointments provided. Longitudinal wooden benches on two decks accommodate as many individuals as it is possible to provide with seats, and the vacant spaces between and about these benches allow standing room for the remainder. As long as these boats are kept reasonably clean and their machinery is maintained in such shape as to propel them back and forth across the river at a handsome rate of speed, their service duty is fulfilled; yet the Interstate Commerce Commission has said that the rates that are fair for riding on a new ferry-boat which cost \$150,000 must be reduced when after a few years the railroad has conserved from its ferry-boat earnings a proportion of the original cost of this boat and reinvested the money—perhaps by buying box cars to carry wheat and other articles to feed the commuters between trips. The commission would probably hold, following the same line of reasoning, that the freight rates on the wheat and other commodities should be reduced after the cars that were acquired by the reinvestment of the ferryboat depreciation fund have in turn become depreciated and the box-car depreciation fund has been reinvested in still other property.

As long as the service is unimpaired this is erroneous doctrine. What the buyer of eggs, or the ferryboat passenger or the shipper is concerned with is the character of the consumption goods that his money pays for, and this does not vary directly with the cost of the production goods utilized in serving him. An egg is an egg, for eating purposes, if it is fresh, whether it came from a pullet or an old hen, or whether it was laid by the scrubbiest of hen stock or the fanciest of high-grade poultry. A ferryboat ride is the same whether the boat be old or new, whether the steel of her hull was bought at panic prices or at the top of a wartime market. And so with the transportation of a carload of wheat.

THE JOINT REPORT ON CONCRETE

A final report has been made by the Joint Committee on Concrete and Reinforced Concrete, an organization formed by the union of special committees appointed in 1903 and 1904 by the American Society of Civil Engineers, the American Society for Testing Materials and the American Railway Engineering Association and later by the Portland Cement Association and the American Concrete Institute. Earlier reports were presented in 1909 and in 1912. The new report has been printed in the Proceedings of the American Society of Civil Engineers for December, 1916. The committee asked to be excused from further work but recommended a continuation of the work by others, referring to the particular advantage of co-operative efforts by representatives from different technical societies.

The report is not intended as a complete specification but rather as a manual of the general principles governing the design, detailing and construction of concrete and reinforced concrete structures. In many respects this last report differs only slightly from that of 1912, although on some subjects considerable new information is given. Following the statement of the general principles, destructive agencies are discussed in some detail. The effectiveness of good concrete as a protection to any embedded steel reinforcement is definitely affirmed. The injury to concrete and reinforced concrete under ordinary voltages by electrolysis is deprecated, with the statement that non-reinforced concrete structures are practically immune from troubles of this kind. However, warning is given against the use of salt or calcium chloride in structures subject to appreciable electric currents.

While confirming current opinion to the effect that the damage to sea walls can be largely accounted for by frost

action, the remarks on the effect of sea water indicate that further investigation is desirable. This is true also of the report on alkalis. Of acids, it is stated that dense concrete, thoroughly hardened, is affected appreciably only by acids which seriously injure other materials. Substances like manure that contain acids may injuriously affect green concrete but do not affect concrete that is thoroughly hardened. Concrete is reported immune from harm by mineral oils, but vulnerable to fatty oils which form compounds with the lime.

Portland cement alone is permitted in reinforced concrete work, natural cement being limited to mass concrete where comparisons of proportions giving equivalent strength show natural cement to be cheaper. Puzzolan or slag cement is excluded from use in the important work and is limited to unimportant foundations not exposed to air or running water.

Under specifications for aggregates, blast furnace slag is specifically excluded, "especially for reinforced concrete construction," with the statement that no satisfactory specifications or methods of inspection have been developed that will insure a uniform material. Cinder concrete is permitted in reinforced concrete slabs not exceeding 8 ft. in span and in mass concrete. Reinforcing bars are limited to those made from billet steel and conforming to the specifications of the American Society for Testing Materials.

Under mixing there are rather extended remarks concerning machine mixing with relatively little comment on hand mixing. The former calls for the use of a batch mixer and a minimum of $1\frac{1}{2}$ min. mixing time in the mixer, with 2 min. for mixers of two or more cubic yards capacity. Reference is made in a rather indefinite manner to the danger of having concrete too wet. In covering the subject of the placing of concrete some space is devoted to the proper methods of spouting. The plant should be of such proportion as to insure a practically continuous stream in the spout. "The angle of the spout with the horizontal should be such as to allow the concrete to flow without separation of the ingredients. In general, an angle of about 27 degrees is good practice. Tremies are recommended for concreting under water, with drop-bottom buckets as a second choice.

The chapter on details of construction covers joints, shrinkage and temperature changes, fireproofing and waterproofing. The splicing of bars by lapping is approved on the basis of safe bond stresses, although the use of splices in main tension bars is discouraged. No mention is made of the use of clamp of any kind. The section on waterproofing states that a concrete made as dense as possible by proper proportioning and suitable consistency will be impervious to moderate pressures. The use of membranes of asphalt or coal tar preparation is also mentioned. Under surface finish the report states that "concrete is a material of individual type and should be used without effort at imitation of other building materials," and also that "the natural surface of concrete in most structures is unobjectionable."

Except for a treatment of the subject of flat slabs, the chapter on design contains nothing essentially new. To those who have followed the tests on the bond of plain and deformed bars, considerable interest will be attached to the statement—"Where high bond resistance is required the deformed bar is a suitable means of supplying the necessary strength. But it should be recognized that even with a deformed bar, initial slip occurs at early loads and that the ultimate load obtained in the usual test for bond resistance may be misleading." Three pages are devoted to a discussion of diagonal tension and shear. The chapter on working stresses does not differ to any extent from that of the previous report. An appendix attached to the report gives a table of the accepted nomenclature and formulae for reinforced concrete design.

Car Inspection a Vital Factor in Operation*

Inspectors, Because of Added Duties and Responsibilities, Must Be Selected and Trained With Greater Care

By Hiram W. Belnap

Chief of the Division of Safety, Interstate Commerce Commission

RAILWAY development of the past few years has vastly increased the importance of the car inspectors' work, and it is my observation that railway managers as a rule have not yet awakened to that fact, or, at least, have not sufficiently appreciated the change in the car inspector's status by making adequate provision to insure the proper performance of his increased and responsible duties. The car inspector's duties are so many and of such grave importance that but few employees in railroad service are called upon to exercise a broader general knowledge of the conditions of safe railroad operation than the man who inspects cars. With the tremendously increased size and capacity of cars, as well as length and tonnage of trains, it is necessary for car inspectors to be better qualified and better informed than the foreman used to be. A car inspector must be thoroughly familiar with the details of construction and maintenance of cars of all classes; he must understand the application of the rules of interchange, which are growing more and more complicated each year; he must know the federal safety appliance requirements in detail, including the air brake system. He must know the rules and regulations governing the loading, placarding, and handling of explosives and inflammable materials, and must be familiar with the requirements governing car clearance on every portion of the road on which he is employed; he must also be able to pass intelligently upon the loading of long materials. *In short, the importance of the car inspector's work has increased to such an extent that the service requirements can only be met by men above the average, both mentally and physically.*

Under present requirements a competent car inspector must be a man of alert mind and more than average intelligence. He must be prompt to act in emergencies, and both able and willing to assume responsibility when the occasion demands. The service is exacting, and the mind must act quickly in order that the man may properly perform the work imposed upon him in the limited time at his disposal. When all is considered, it is astonishing that capable car inspectors are found to perform the multitudinous duties that are imposed upon them, particularly when it is understood that their compensation compares very unfavorably with that given to men of equal mental attainments in other branches of railroad employment.

RELATION OF THE CAR INSPECTOR TO SAFETY

An indication of the necessity for thorough and painstaking car inspection may be had by considering the large number of accidents, with their resulting loss of life and personal injuries, as well as damage to property, due to defective car equipment, as reported in the statistics of the Interstate Commerce Commission. Car inspectors also have it within their power to decrease the number of violations of the safety appliance laws and resulting fines imposed upon the railroads, as well as to effect a considerable reduction in the claims for loss and damage to freight.

During the ten year period 1907-1916 there were 72,122 derailments reported to the Interstate Commerce Commission, of which number 33,782, or 46.8 per cent, were charged to defective equipment. In the total number of derailments which occurred during this period there were 3,334 persons

killed, 51,952 injured, and a property loss of \$62,381,338 was suffered. This property loss includes only the damage to equipment and roadway, and cost of clearing wrecks. Of the above items, defective equipment was responsible for 14.9 per cent of the deaths, 16.3 per cent of the injuries, and 43.5 per cent of the whole amount of property loss suffered in derailments, the figures for defective equipment accidents being 497 deaths, 8,491 injuries, and \$27,160,785 property loss. The derailments due to defective equipment increase steadily from year to year as compared with derailments due to other causes. In 1907 they were 42.7 per cent of the whole, and in 1916 the percentage was 51.5; the average for the ten year period was 46.8 per cent. A tabular exhibit of this increase by specific causes, condensed into five year periods for the sake of brevity, is as follows:

Deraillments Due to—	1907-1911	1912-1916	Inc. Per cent
Defective wheels	5,196	5,453	61
Defective axles	1,757	2,166	23
Defective brake rigging.....	1,845	2,548	38
Defective draft gear	795	1,553	95
Defective side bearings.....	310	777	150
Defective arch bars.....	637	1,368	115
Defective rigid trucks.....	333	1,000	200
Defective power brake apparatus...	705	1,584	125
Failure of couplers.....	723	1,080	49
Miscellaneous equipment defects...	1,593	2,359	48
Total	13,894	19,888	43

The number of casualties increased in proportion to the increase in number of accidents, the ratio of casualties to accidents being approximately the same for each five-year period. The casualties for the year 1916 total 523, the vast majority of which number affected railroad employees. From the humanitarian standpoint alone steps should be taken to diminish the number of accidents due to this cause, which so greatly increase the hazards of railway employment. The chief hope of a bettered condition in this respect lies largely in diligent and efficient car inspection.

CAR INSPECTION AND PROPERTY LOSS

Nor is the property loss a matter of small importance. The damage to equipment and roadway and cost of clearing wrecks caused by defective wheels increased from \$5,020,617 for the period ending June 30, 1911, to \$5,398,634 for the period ending June 30, 1916. Increases in the other items included under defective equipment are as follows: Axles, from \$1,314,337 to \$1,852,631; brake rigging, from \$1,408,962 to \$1,812,025; draft gear, from \$426,658 to \$940,732; side bearings, from \$225,806 to \$540,418; arch bars, from \$600,089 to \$1,540,091; rigid trucks, from \$189,811 to \$594,074; power brake apparatus, from \$397,587 to \$779,033; failed couplers, from \$337,197 to \$514,952; miscellaneous equipment defects, from \$1,227,230 to \$2,039,901.

For the year 1916 alone the damage to equipment and roadway and cost of clearing wrecks due to defective equipment, amounted to \$3,420,200. If to this sum there is added the amount paid in claims allowed for damage to property and injuries to persons, the annual loss to the railroads chargeable to accidents due to failure of equipment is so enormous as to compel attention, and demand remedies that will reduce this great economic loss of life and property to an absolute minimum.

It may be said that the increases above noted are about commensurate with the increase in the number of units of

*From a paper on "The Selection and Training of Car Inspectors," presented before the January 12 meeting of the Central Railway Club and copyrighted by that club.

equipment during the same period, and are no more than might reasonably have been expected to occur. This would be true provided our starting point represented a minimum, but experience demonstrates that such is not the case. Fortunately, we are able to show that certain kinds of equipment defects to which special attention has been directed, have enormously decreased during this same period, and as a consequence the accidents due to their existence have decreased in like proportion. I refer to the appliances for the protection of trainmen formerly covered by the standards of the Master Car Builders Association, and now subject to regulation by federal statute.

SAFETY APPLIANCE INSPECTION

When the Interstate Commerce Commission first instituted its inspection service, the railroad car inspectors had not been educated to give special attention to those units of equipments included in the standards for the protection of trainmen,* and their inspection was not as thorough as it should have been. The first year of the Commission's work of inspection for which we have a complete record is the year 1902. In that year the Commission's inspectors inspected 161,371 cars and found 42,718 cars, or 26.47 per cent of the number inspected defective with respect to the items to which their inspections were directed; that is, out of every 100 cars inspected about 27 were found defective. For the year 1916, out of 908,566 cars inspected, only 33,715, or 3.72 per cent were defective. This notable decrease occurred notwithstanding the fact that, owing to an extension of the law in 1910, inspections now cover a great many appliances that were not included in the earlier inspections.

There can be no doubt that this great decrease has been brought about by the education and training of car inspectors. When the federal inspection service was inaugurated railroad car inspectors had but vague and indefinite notions of the law, and they had received no special instructions relative to inspection of appliances covered by the federal statute. In many cases they looked upon the government inspectors as enemies, and devoted more attention to attempts to evade the law than to measures for compliance with it.

A few years ago, under the direction of the secretary of the Interstate Commerce Commission, accompanied by another inspector, I made an inspection on one of the large eastern trunk lines. During this inspection we were accompanied by one of the mechanical officers of the company, with authority to request at each inspection point that all of the available car inspectors might be assembled, so that the safety appliance acts and their application might be discussed. At each inspection point from four to twenty car inspectors were assembled, and the fact that impressed itself more than any other upon my mind was that each of these employees seemed to be hungering for information concerning the safety appliance work. The men were taken to a train yard where all classes of cars were available, and every question that they asked concerning the appliances covered by the law was fully explained. In many instances the men frankly stated that it was the first time they had ever had the safety appliance requirements explained to them in an understandable way, and it was indelibly impressed upon my mind at that time that the thing most needed to bring about a thorough understanding regarding the law was a system of instruction concerning it, so that those charged with the maintenance of these safe-guards might have full information, not only as to their number, location, dimensions and manner of application, but also as to their necessity.

Within the past 15 years the Interstate Commerce Commission has distributed hundreds of thousands of documents for the education of car inspectors on various phases of the

law, and has carried on an educational campaign through its inspectors which has been productive of marked results. Car inspectors now understand that it is our purpose to co-operate with them in accomplishing the ends of the law, and practically all of them have a good working knowledge of the statutes and their duties under them.

PROSECUTIONS UNDER SAFETY APPLIANCE ACTS

In addition to the influence which our educational campaign has had, much good has been accomplished from the work of railroad managers in their efforts to reduce the number of prosecutions for violations of the law. This influence has induced them to pay special attention to the work of their car inspectors with relation to safety appliances. Inspectors have been impressed with the necessity of paying strict attention to the inspection and repair of safety appliance defects; some roads have appointed traveling inspectors, whose duty it is to instruct local inspectors with respect to compliance with the law, all of which has proved of considerable profit to the roads, and points the way to similar benefits in connection with general inspection. A brief statement of prosecutions under the safety appliance law may prove of interest.

Up to June 30, 1916, there had been prosecuted under the safety appliance acts 2,033 cases involving 6,544 violations of these acts and penalties collected, exclusive of costs, to the amount of \$479,300. A tabulation of these cases recently made discloses the interesting fact that of the total number prosecuted, 3,038, or approximately half, were for inoperative and defective uncoupling mechanisms—defects readily discoverable by inspection. The defects constituting these cases for prosecution are all ones that could easily and inexpensively have been repaired and cover such simple defects as broken or missing keepers, disconnected and kinked uncoupling chains, missing uncoupling levers, etc., showing that the most prolific cause of prosecution is from a source probably most easily remedied. Defective or missing handholds have been the next most frequent cause of prosecution, there having been 1,875 such cases, or about 30 per cent of the total number of violations, these again being defects easily discovered and remedied at a minimum cost. The 303 cases of link and pin couplers, 168 cases of broken or missing couplers and 160 cases of couplers either too high or too low were fruitful of additional great expense to the carriers in penalties paid, while the 273 cases in which trains were hauled without the percentage of air brakes required by law shows the necessity for more thorough inspection.

Care and diligence in supervising and training engine and train employees have assisted materially in bringing the volume of collisions on American railroads in the last decade from 8,026 in 1907, to 4,770 in 1916. During the same ten-year period derailments (46.8 per cent of which were due to defective equipment) increased from 7,432 in 1907, to 7,904 in 1916, of which latter number 4,073, or more than 50 per cent, were due to defects of equipment. These statistics suggest that a similar record might be possible if the same care and diligence were exercised in the supervision and training of men in the car inspection service.

More frequent, more careful, and more intelligent inspection would most certainly lead to the prevention of a great majority of equipment derailments. While it is true that inspection of cars and locomotives in a train at inspection points must, under modern conditions, be more or less superficial, yet the practiced eye and the trained ear of the expert inspector are enabled to detect defects which to the untrained and inexperienced are undiscoverable. The younger and more inexperienced men should have work in the field with men of experience in detecting defects, supplemented with class-room work which should show by means of failed

materials exactly where and how the various integral parts fail and how these defects may be discovered in the train. In any event, the car inspector is practically the only person that you can depend upon for a reduction in accidents due to defective equipment.

SACRIFICING SAFETY FOR DESPATCH

An important influence which militates against proper inspection of cars, particularly at terminals and division points, is the hasty manner in which railroad work is usually performed. The desire to maintain train schedules and prevent terminal delay in the movement of cars, is, of course, highly commendable. It cannot be denied that every effort should be made to keep cars moving, and prevent delays by all proper means. This effort is often carried to extremes, however, and results in the sacrifice of safety for despatch. In many instances, train schedules are so arranged that entirely too little time is allowed for thorough inspection of passenger trains at terminal and division points, and particularly for the repair of such defects as may be disclosed by inspection. The cars have to be inspected practically "on the run," the inspector working under constant fear that he may be criticized for holding the train past its schedule leaving time, or in excess of the dead time shown on the card. The situation is not improved by the station or trainmaster, whose main thought is to prevent delay to the train while it is under his jurisdiction, and who is inclined to impress this thought upon the car inspector with unnecessary emphasis. Under such conditions the tendency to make inspections in an entirely superficial manner, and to slight, or entirely neglect, work that should receive careful and painstaking attention, is altogether too common.

Our accident investigations have disclosed numerous cases of improper inspection, due to lack of sufficient terminal time, as well as instances in which important high-speed passenger trains have been permitted to go forward with cars in defective condition. In several cases trains have gone forward without the required percentage of air brakes in operative condition. Investigation developed the fact that the inspectors had never been given definite instructions relative to the number of cars with brakes cut out to be run in a passenger train, the practice being to cut out the brakes if replacing the brake shoe would result in considerable delay.

RAILROADS SHOULD INSTRUCT INSPECTORS

A number of railroads have published instruction books and examination questions for the benefit of car inspectors and repairmen, but I have seen none of such that refers to anything except the air brake. It goes without saying that car inspectors and repair men should have a good working knowledge of the air brake, but it occurs to me that it is fully as important that they should be instructed and examined concerning the M. C. B. standards relating to car construction and equipment, rules of interchange, etc., as well as all requirements of the laws. That there is a demand for instruction in such matters is proved by the fact that private parties have found it profitable to undertake the publication of books purporting to give the federal requirements, such books as a rule being merely copies of government publications. Car inspectors should not be required to buy books of this sort from private parties. Such information should be given them freely by their employers, to the same extent that air brake information is freely furnished. To operate a railroad without a comprehensive set of rules and instructions for train and enginemen, and without subjecting these men to examinations to insure that the rules and instructions are understood is unthinkable. Why is it not fully as important to know that car inspectors are fully informed concerning their duties and are competent to perform them?

SELECTION AND TRAINING OF INSPECTORS

Many addresses have been given and a large number of papers published with reference to methods of selecting and training men for different branches of railroad employment, but the bulk of the literature on this broad and important subject deals principally with the selection and training of employees for promotion rather than with that phase of the question which concerns us most directly here, namely, the selection and training of car inspectors properly to inspect and repair cars. It is self-evident that the workman of today, instructed and trained in the proper performance of his duties, will furnish good material for a foreman or other officer later on, and if the men in the ranks are up to standard in training and proficiency the problem of securing available men for promotion will be very much simplified.

The selection of men for employment in different capacities is a question which can be and is theorized about almost without end, but a great deal of such theorizing is visionary, and at any rate as applied to the employment of car inspectors, is entirely impractical. If there were ten applicants for every job, some discrimination in the selection of the one man could be exercised, and a method of elimination could be adopted for weeding out those not suited to the work. But no doubt most of you would tell me that the number of inspectors required is so large that considerable difficulty is found in getting a sufficient number of capable men for this purpose, and this difficulty is not improved by the low salaries which are paid to these men.

It is essential that the selection of men for employment as car inspectors should be assigned to some officer who not only is well informed regarding the duties and requirements of that position, but also who has some particular qualification or ability of sizing up men. And it is my belief that car inspectors should be recruited from the ranks of the repair men. The inspector should have at least a common school education; he must be able to write a repair card in a legible manner, as well as to make out clear and comprehensive reports, and in order that he may have the necessary knowledge of car construction, he must have served for a considerable period on the repair track or as an apprentice car carpenter.

SANTA FE HAS FREIGHT CAR APPRENTICES

A modern apprenticeship system for car department employees is just as desirable and essential as for the mechanical and other departments. It is reported that of the 974 apprentices on the Santa Fe on May 31, 1916, 148 were freight car apprentices and 25 were car builder and coach carpenter apprentices.

At a recent meeting of the New York Railroad Club, F. W. Thomas, supervisor of apprentices for the Atchison, Topeka & Santa Fe, presented a very interesting and instructive paper upon the subject of "Training Young Men for Positions of Responsibility," showing the splendid results obtained by that railroad through its apprenticeship system. After carefully reading this paper, to my mind two thoughts stand out prominently: first, the manner in which these apprentices are treated from the time they first enter the service until they are placed in positions of responsibility; and second, the close supervision that is at all times given them during their course of apprenticeship. If similar conditions of service and supervision were applied to the training of car inspectors, I feel certain that there would be not only a bettered condition of equipment upon our American railroads and a remarkable decrease in accidents, but instances of prosecution under the safety appliance laws would be eliminated.

The practice is far too common to employ men as car inspectors and then to give them no special instructions or training. They are put to work and expected to pick up what information they can concerning the duties required

of them from other car inspectors, not too well trained themselves. It is a safe venture that nine out of ten inefficient car inspectors fail to measure up to their jobs on account of either lack of interest or lack of proper instruction and training, rather than inability to do the work required. This brings us face to face with the proposition that a workman is to a great extent what his boss makes him, and that the immediate superior of the car inspector is largely responsible for either his efficiency or his incompetency.

TRAVELING CAR INSPECTORS

Some systematic method of instructing car inspectors regarding their duties, and educating them regarding the importance of their work, should be adopted. It may be feasible to assign the duty of instructing car inspectors to the foreman, although in some cases no doubt it will be found necessary to instruct the foremen themselves, and assign the duty of further instruction to other employees. Another plan which holds much promise is the employment of traveling car inspectors who instruct the men and from time to time check up the condition of equipment and methods employed in the different train yards. It can not be doubted that the knowledge that a traveling car inspector is on the road and likely to drop into a yard at any time has a stimulating effect upon car inspectors and their foreman. It is believed that the employment of a sufficient number of such traveling car inspectors to permit of checking up conditions in yards frequently would be beneficial. One such traveling inspector recently stated that while he had noted a marked increase in the efficiency of the inspection force at a large terminal on his line, he recently made an inspection of car and safety appliance equipment on freight trains leaving that terminal and discovered two defects, both of which happened to be penalty defects.

In how many of our large railroad terminals do the foremen of car inspectors go over trains personally? It may be granted that usually the foremen are well informed regarding the standards and requirements for car equipment, but too often their entire time is taken up by other duties which confine them to their office, and the foreman may not be aware of defects getting by one or more of his car inspectors until complaints regarding defective equipment leaving his terminal or inspection point are brought to his attention. It has been suggested, in order to require a foreman to check up his men more closely and to know that they are properly performing the duties required of them, that periodical reports regarding each inspector on his force be submitted to the general foreman of car inspectors.

A point which will bear much consideration and emphasis is to make the job as interesting for the man as possible. Many car inspectors will be found who are letter perfect, for example, in the United States safety appliance standards, but how many car inspectors, or even foremen of car inspectors, know why four ladders are required on a box car or why grab-irons must be at least 16 in. long and have a clearance of not less than 2½ in., and the reason for their definite location? In any case it is desirable for the man to display some enthusiasm for his work and to take pride in doing it well. He will not display any enthusiasm for his work unless he feels it, and the basis for any such enthusiasm must be first of all a certain respect for his position.

DIGNIFY THE JOB

We hear much in these days of the desirability of men feeling enthusiasm for their work, and displaying loyalty to their employers' interests. Enthusiasm and loyalty are the necessary pre-requisites of efficiency. Unless a man feels enough interest in his work to be enthusiastic about it, he will value his job only for its material advantage to himself, and his feeling of loyalty to the interest of his employer will usually be a minus quantity. To create this

feeling of enthusiasm and loyalty in the car inspection service, the position of car inspector must be made worth while. It must be made a preferred job; one that men in the lower ranks will strive to attain, not alone for its material rewards, but also for the position and importance that goes with it. If men are made to feel that their work is considered important, worthy of consideration, valuable to their employer, they will naturally feel enthusiastic about it, and the men below will strive with might and main to attain the higher position. When an organization is permeated with that sort of enthusiasm the question of loyalty may well be permitted to take care of itself.

Several definite propositions may be suggested for building up a proper regard for the work. One of the most important of these is a written examination for all car inspectors upon their employment, and subsequent periodical examinations, similar to examinations for train service employees. The inspector should also be furnished with information regarding the cost of materials used, and should be impressed with the value and importance of his work to the company. It has been suggested that there is frequently too much criticism and fault-finding, without constructive suggestions, on the part of supervising officers. Active interest and encouragement from the men higher up are essential to that "team work" without which the highest standard of efficiency is unattainable.

I may here cite another incident from my personal experience, which illustrates in a striking manner one of the evils to which the car inspection service is subject: On one occasion, accompanied by a general foreman in charge of a terminal, an inspection was made of a train ready to leave that terminal, which had cars in it on which were found a number of penalty defects, and if the train had been permitted to go forward it would have meant prosecution in the federal courts. After the inspection was completed an inspector was called to the office and inquiry was made as to whether or not he had inspected the train in question, and when it was ascertained that he had done so the general foreman called his attention to the six serious and dangerous defects which existed on the cars in the train, and then and there dismissed him from the service. The next day this inspector informed me that in the two years he had worked in that yard it was the first time he had ever seen the general foreman in the train yard, and that at no time had he ever received any instructions relative to the requirements of the safety appliance acts.

The government has written upon the statute books a number of laws intended to lessen the risk of railroad employment as well as prevent accidents, but no law, no matter how rigidly enforced, can correct evils that are directly chargeable to the failure of employees properly to perform their duties.

No class of men as a rule have a keener appreciation of their responsibilities than railroad employees, and any failure in duty on their part is often a form of thoughtlessness in which the chief motive is haste, or due to the fact that a full and complete understanding of their work is lacking. This, I believe, is particularly true in the car inspection service. One of the most encouraging signs of the times, to my mind, is that the railroad managers and employees in every branch of service are co-operating, through safety committees, in a campaign of education in which all interested participate for the common good, and from which is certain to result an improvement both in safety conditions and personnel.

In all branches of service, but particularly in the car inspection service, the system of education must go farther. Each of the appliances required on cars in the way of safety appliances were fixed only after most careful thought, as well as a study of the years of experience of the carriers as indicated by the requirements fixed by the Master Car

Builders' Association. Car inspectors should be trained and educated so that the underlying reasons for all safety appliances are fully understood and comprehended.

The prominence which is given the work of the car inspector in recent discussions of railroad operating problems, is evidence that his importance as a factor in safe and economical operation is coming to be appreciated at its true worth. At the recent convention of the Chief Interchange Car Inspectors' and Car Foremen's Association, in Indianapolis, the scope of the membership was broadened so as to include car inspectors, and for the first time the association took up the discussion of general questions relating to car department problems, instead of confining itself entirely to the M. C. B. rules of interchange. Representative railway officers addressed the convention, the burden of their remarks being the importance of the car department and the necessity of selecting good men to perform the work imposed upon it.

F. W. Brazier, superintendent of rolling stock of the New York Central Lines, pointed out very clearly how the number of derailments could be reduced by more careful inspection, and very truly stated to the convention that there was no subject which it could take up that would result in more good to the railroads than better maintenance of equipment. He presented figures to show that of 25,550 cases of derailment, 32.5 per cent were chargeable to equipment failures. To use the words of an observer at this convention, as reported in the *Railway Mechanical Engineer*, "Car inspectors and car foremen! Officers in the mechanical and operating departments have sometimes elbowed them aside as if they were not worthy of or capable of the bigger things in the mechanical department. Times have changed. With the more severe and exacting conditions it has become apparent that just as high, and possibly a higher degree of executive and technical ability is required to solve car department problems and handle the labor question as in the locomotive and operating departments."

CONCLUSIONS

This whole question is a complex problem, worthy of the most thoughtful consideration of those high in authority in railroad management. In the suggestions I make in this paper I therefore avoid anything but the most general reference to what field the instruction and training of car inspectors should cover. The points which I have attempted to cover may be briefly summarized as follows:

(1) Railway development has vastly increased the importance of the car inspector's work within recent years, and adequate provision must be made to insure the proper performance of his duties.

(2) Over 46 per cent of all derailments which occurred on the railroads of the United States during the ten-year period 1907-1916 were due to defects in equipment. These derailments caused 14.9 per cent of the deaths, 16.3 per cent of the injuries, and 43.5 per cent of the property loss suffered in all derailments during this ten-year period. Derailments due to equipment defects are steadily increasing from year to year, and the chief instrumentality which the railroads must depend upon to improve this condition is the car inspector.

(3) That education and training of car inspectors is effective in reducing the number of equipment defects is proved by the record of decrease in defects reported by federal inspectors. In 1902, the defective cars reported were 26.47 per cent of the whole number inspected, while in 1916 the percentage was but 3.72, notwithstanding that the inspection in 1916 covered a great many appliances that were not included in the earlier inspections. This notable decrease has been brought about by the campaign of education which the Interstate Commerce Commission has carried on through its inspectors, by the distribution of thousands of documents,

and by the work of railway managers in their efforts to reduce the number of prosecutions for violation of the law.

(4) An important influence which militates against proper inspection is the haste with which such work is usually performed. In many cases train schedules are so arranged that entirely too little time is allowed for thorough inspection of passenger trains, and the inspector is working under constant fear that he will be criticized for holding the train past its schedule time. Under such conditions the tendency to make inspections in a superficial manner and to slight or neglect work that ought to be done is altogether too common. Our accident investigations have disclosed cases of improper inspection, due to lack of terminal time, in which important high-speed trains have been permitted to go forward with defective brakes, and in some cases without the lawful percentage of brakes in operation. In these cases the inspectors have stated that they had never been instructed about cutting out brakes on passenger trains, and it was their custom to cut out brakes, if replacing worn out brake shoes could not be done in the time allowed.

(5) The selection of car inspectors should be assigned to some official who is well informed concerning the duties of the position and who has some ability in reading character. Generally speaking, inspectors should be recruited from the ranks of the repair men. Before being placed at work in this responsible position, it should be thoroughly drilled into them that any omission to detect defective equipment is fraught with danger to life and limb. They should be efficiently instructed as to each standard of safety involved in the safe running of the car, and such standards should be formulated in rules as far as such formulation of fixed rules is practicable. An inspector should have at least a common school education; he must be able to write a repair card in a clear and legible manner, and make out clear and comprehensive reports. A modern apprenticeship system for car department employees is just as desirable as for the locomotive or other departments.

(6) It is believed that nine-tenths of the inefficient or incompetent car inspectors fail to measure up to their jobs, either through lack of interest or lack of instruction and training, rather than through inability to do the work required. To create the requisite interest and enthusiasm for the work the job must be made worth while. It should be made a preferred position, which men in the lower ranks will strive to attain, not alone for its material rewards, but also for the dignity and importance that goes with it.

(7) Definite propositions for inculcating proper regard for the work are: written examinations covering all matters concerning which inspectors must be informed, such as Master Car Builders' standards, rules of interchange, federal requirements, rules for loading long materials, regulations for the loading and handling of explosives and inflammable materials, strength of materials, etc., periodical examinations leading to line of promotion, similar to examinations given train service employees; schools of instruction where men may be taught concerning their duties; proper supervision and adequate compensation.

DISCUSSION

F. W. Brazier (N. Y. C.) commented on the extravagance of departing from approved designs and specialities to save a few dollars in the first cost of cars and then spending many times more in maintenance to keep them in service. Railroad officers could save much trouble and expense if they would study government reports more closely with a view to remedying the defects which cause the greatest trouble. It is a serious mistake to repair cars in kind if they get out of order shortly after the repairs are made. Wooden door stops were cited as a case in instance. Moreover, some roads, although the capacity of the cars and size

of doors on box cars have been considerably increased, are using the same door fixtures as they did 15 years ago. It is little wonder that trouble is experienced. On the New York Central extra compensation is paid to inspectors, and especially in passenger car work, for finding hidden or obscure defects that in the judgment of the foreman would not have been discovered in the course of ordinary inspection.

W. H. Sitterly (Gen. Car Inspector, Pennsylvania, Buffalo) thought that proper training of car inspectors is afforded by having foremen car inspectors who have the backing of the higher officers. Inspectors at interchange points should first serve in classification yards. One source of trouble is the issuing of orders to foremen car inspectors by officers who have never had experience in that work. The car inspector is receiving greater recognition today than in the past.

P. J. O'Dea (G. I., Erie) said that car inspectors had been much neglected and that there is immediate necessity for a broader and more liberal treatment of these men. Certain rules were drawn up for the government of car inspectors by the M. C. B. Association in 1902. Because of changed conditions these rules are obsolete and yet they are printed in the proceedings from year to year, with no effort to make them effective. Car inspectors should receive a wage in keeping with men of similar skill and industry in other fields. The public demands better and safer service. It will be a good investment to take measures to insure a better and higher grade of inspectors. As important as monetary returns is the necessity of interest and backing from the higher officers. The value of traveling inspectors in checking the work and bringing up the standards has been demonstrated.

R. V. Wright (*Railway Age Gazette*) advocated the necessity of giving more attention to the selection of freight car repairmen and of educating them not only to a better performance of their work, but with a view to future promotion to positions of greater responsibility. It is from these men that most of the car inspectors are selected and there is no reason to believe that this practice will not continue. Attention was directed to the efforts being made by the chief Interchange Inspectors' and Car Foremen's Association along these lines.

T. J. O'Donnell (Arbitrator, Niagara Frontier Car Inspection Association) thought that the expenditure of upwards of \$100,000,000 by the railroads in the last 10 years in bettering the equipment was an indication of sincerity on their part in meeting the demands of the government and public opinion for better and safer service.

J. P. Carney (G. C. I., Mich. Cen.) emphasized the value of a bonus, or extra compensation for the discovery of hidden or obscure defects.

Henry Boutet (C. I. I., Cincinnati) stated that the car inspector was held responsible for inspecting the trains and should not allow them to depart until his work had been properly and thoroughly done. He suggested that Mr. Belnap arrange to have his men hold schools at various important points to instruct the railroad inspectors as to exactly what was required by the government.

STATE CONTROL FOR IRISH RAILWAYS.—The Government has disposed of a threatened strike of enginemen on the Great Southern & Western of Ireland, behind which was a grievance affecting all Irish railway men, by assuming control of the railways of Ireland. The trouble arose out of the amount of the war bonus paid to railway men in Ireland. In bringing the Irish railways into line with the British roads in the matter of control a step is being taken, the development of which will be watched with interest. Although the railways of Ireland are only 1,300 miles in length they belong to 27 different companies.—*Railway Gazette, London.*

WASHINGTON CORRESPONDENCE

WASHINGTON, D. C., January 17, 1917.

LABOR BILLS IN CONGRESS

Very little progress is being made toward labor legislation in Congress. The Senate Committee on Interstate Commerce has had a great deal of difficulty in reaching an agreement on the form of a bill or bills to carry out President Wilson's recommendations for some means of protecting the commerce of the country against strikes. The committee concluded its public hearings last week, but in executive sessions on Friday and Saturday found itself deadlocked on the question of compulsory investigation of labor disputes, which is so strenuously opposed by organized labor. Four Progressive members of the committee, Senators Clapp, La Follette, Cummins and Poindexter, declared themselves unalterably opposed to the proposal for making strikes illegal until after an investigation, and at a meeting on Tuesday the committee voted 7 to 3 against such a plan.

The House Committee on Interstate and Foreign Commerce to which was referred the new Adamson bill for an eight-hour day and compulsory investigation, considered the question on Friday but took no action. As there seems to be a strong impression in Washington that the Supreme Court may render its decision in the Adamson law case on February 26, at the conclusion of a three weeks' recess, it is possible that Congress will attempt to "stall" to see whether the status of the law will be determined at that time. President Wilson, however, is determined that the legislation shall be put through and yesterday conferred with Mr. Adamson on the subject.

William J. Bryan came to Washington this week to appear before the Newlands committee, in accordance with a rather indefinite understanding had at the time of his previous appearance before the committee. When he found that the committee was not in session he called on Chairman Adamson of the House committee to propose a plan for settling labor disputes by the creation of a permanent commission at Washington.

The concluding testimony before the Senate committee was presented by Samuel Gompers, president of the American Federation of Labor, who vigorously opposed compulsory investigation and declared that strikes were frequent in Australia in spite of such a law. He said he was less concerned with the Adamson law than with the fact that Congress had approved the eight-hour principle. P. J. McNamara, vice president of the Brotherhood of Locomotive Firemen and Engineers, told the committee that the brotherhoods do not want Congress to do anything, that they do not want Congress to place any limitation on the hours they shall work nor on the power to strike or threaten to strike.

"Do the men really want to be prohibited from working more than eight hours or any number of hours?" asked Senator Brandegee.

"No," replied Mr. McNamara. "We don't want Congress to place any limitation on the hours the men shall work because we believe it would be impracticable in certain cases. In yard and transfer service where we believe it can be put into effect, the men are very anxious to have an eight-hour day, but we have never asked for a flat eight-hour day in road service. All we are asking for is the 12½-mile speed basis. Where it is consistent we want the eight-hour day, but we are willing to haul trains 150 miles provided we are paid for 12½ miles an hour. There are few divisions over 150 miles. We are willing to run 100 miles in eight hours, 125 miles in 10 hours or 150 miles in 12 hours."

Senator Pomerene asked whether the men wanted a reduction of the 16-hour limit provided by the hours of service law. Mr. McNamara said he would personally favor a reduction to 12 hours but that he was not authorized by his organization on that point.

"We are altogether opposed to any compulsory arbitration or compulsory investigation," he said. "When you take

away from the working man the right of collective bargaining you take away everything he has. The right to strike or to threaten to strike as a last resort is the only weapon we have. If you take that away I fear that the working men will not be as good law-abiding citizens in the future as they have in the past."

Asked whether the men were satisfied with the Adamson law he said: "We don't know what the law means. We accepted it gratefully, because we thought it gave us the eight-hour day and the 12½-mile speed basis, but now the roads have taken it into court and it may be there for years. We never asked Congress for anything. We don't want Congress to enact any legislation in connection with our rates of pay and working conditions."

* * *

GOVERNMENT INTERPRETATION OF ADAMSON LAW

The government has filed a supplemental brief in the Supreme Court on the Adamson law case discussing the application of the law to the present wage schedule. The government argues, as the men contend, that the application of the law would not do away with the mileage basis of pay nor the minimum day's pay provided by the present schedule for less than 10 hours or 100 miles. The brief asserts that the law declares in effect "that every employee of the class affected shall be considered at the end of eight hours to have earned the contract price payable for a day's work. If he is worked longer, and he may be, such work will constitute overtime and entitle him to extra pay. The economic burden of this extra pay is counted on to produce an actual shortening of hours and this shortening can be effected without curtailing the mileage of a day's trip if the speed per mile is increased." It is asserted that if the men, as in the case of passenger engineers and conductors, complete their day's work in less than eight hours they are unaffected by the act, because the purpose was to decrease, not increase, the hours of actual labor. It is believed, the brief says, that in a majority, if not in all, cases existing schedules could be brought into conformity with the law by the following endorsement: "Whenever by this schedule more than eight hours constitutes a day's work, the same is hereby reduced to eight hours, whether herein stated in terms of eight hours or in terms reducible thereto, and all overtime shall be paid pro rata."

* * *

SENATE SPEECHES ON COMMISSIONER DANIELS

After having voted 42 to 15 to confirm the reappointment of Winthrop M. Daniels as a member of the Interstate Commerce Commission, which had been held up since December 20 by the opposition of the Progressives, the Senate on January 10 voted to remove the injunction of secrecy from speeches in opposition to and in favor of his appointment made by Senators Cummins and Newlands during executive sessions and they were ordered to be printed as Senate documents. Senator Cummins delivered an elaborate speech opposing Mr. Daniels' confirmation, saying that he did not question his intellectual strength and accomplishments nor his general integrity; that he would be glad to vote for him for a great many important and honorable offices, but that Mr. Daniels' trend of mind disqualified him for the work of the Interstate Commerce Commission. This opposition was based upon principles enunciated by Mr. Daniels as a member of the New Jersey Public Utilities Commission in deciding a case involving rates for gas, and the alleged danger of applying those principles to the federal valuation of railroads, and also, upon Mr. Daniels' opinions and influence as an Interstate Commerce Commissioner in the five per cent rate case of 1914 and western rate advance case of 1915.

"I believe," he said, "that our system of the control and regulation of common carriers is on final trial and that if the commission is to be made up of men of Mr. Daniels' trend of mind the system must be abandoned. I have no

hesitation in declaring that if his views are to prevail I am for absolute and immediate government ownership and operation of our transportation facilities. If the charges for service rendered by our public carriers are to increase year after year in the rapid ratio which the principles he advocates will not only authorize, but require, the burden, now heavy, will become insupportable."

He said that if the Senate confirms this nomination it would be a notice to the people of its approval of his principles and he predicted that before long "we will either have the Interstate Commerce Commission made up of men who look upon the subject entrusted to them from a different standpoint than the one occupied by Mr. Daniels or the commission will be abolished." Senator Cummins then reviewed at great length Mr. Daniels' opinion in the gas case and the history of two rate cases, in which Commissioner Daniels had voted for increases in rates. Senator Cummins seemed to think that he has been a controlling influence in the commission. His principal objection to the gas decision, although it placed a valuation on the property amounting to only about half of its capitalization and although it reduced the rate for gas from \$1.10 to 90 cents per thousand cubic feet, was that it included in the valuation entitled to earn a return, an allowance for overhead expense, interest during construction, working capital, and other intangible value as a going concern, and then fixed a rate intended to give the company a return of 8 per cent on this valuation. As to the rate cases, the Senator disagreed with Mr. Daniels' opinion that railway revenues were not adequate.

Senator Cummins predicted that if Mr. Daniels' plan for valuation should be adopted, the valuation of the railroads as a basis for rate making would exceed the existing capitalization by more than six billion dollars and that in his decisions in the rate cases Mr. Daniels, "leading the commission, has ignored the law and exercised an authority which never has been and never will be conferred upon any commission."

Senator Newlands replied to Senator Cummins' address in detail, showing that the allowances for overhead charges, going concern value, etc., made by the New Jersey commission, were based on a conservative application of allowances "regularly made by practically all competent and intelligent engineers" and are supported "not only by their prima facie reasonableness and propriety, but also the practically universal approval of engineers, public service commissions and courts." He also showed that the findings of the New Jersey commission in this case were approved by the Supreme Court of New Jersey in 1913 and that the court took particular pains to approve the inclusion of the allowances for going value.

Senator Newlands also analyzed in detail the opinions of Mr. Daniels and the other commissioners in the rate cases, showing that Mr. Daniels took occasion to indicate his approval of the denials of rate advances in both of the 1910 cases, but had advocated higher rates in 1914 because of the changed conditions. In conclusion Senator Newlands said, "In view of the fact that the five per cent case netted the carriers less than 3 per cent increase in revenue and that the advance created in the 1915 western rate advance case amounted to about \$1,600,000 a year or about one-fourth of one per cent of the revenues of the carriers involved; and in view of the fact that in this latter case the commission made no finding as to the financial conditions of the carriers and predicated no rates thereon, it is submitted that the result of what is designated as the 'most notable contest ever carried on in the United States' has been mistaken."

* * *

PRESIDENT SIGNS NEWLANDS COMMITTEE EXTENSION.

President Wilson on Monday signed the joint resolution passed by the House and the Senate extending until December 3, 1917, the time for a report by the Newlands Joint Com-

mittee on Interstate Commerce on its investigation into the subjects of railway regulation and control and government ownership. The committee will resume its work after the session of Congress is adjourned.

TRAIN ACCIDENTS IN DECEMBER¹

The following is a list of the most notable train accidents that occurred on the railways of the United States in the month December, 1916:

Collisions					
Date	Road	Place	Kind of Accident	Kind of train	Kil'd Inj'd
*1.	N. Y. N. H. & Hart.	Beacon Falls.	rc	P. & F.	2 2
†7.	Denver & R. G.	Price, Utah.	rc	P. & F.	3 7
13.	Phila. & Reading	Brandtsville.	rc	F. & F.	1 1
15.	Chicago & Alton	Carrollton.	xc	F. & F.	0 2
*19.	Atlantic C. Line	Troy, Ala.	rc	P. & F.	.. 2
19.	Pennsylvania	Altoona.	rc	P. & F.	0 1
22.	Chesapeake & O.	Frederick's Hall.	bc	F. & F.	1 2
22.	Central New Eng.	New Hartford.	bc	F. & F.	2 7
22.	Boston & Albany	W. Springfield.	rc	F. & F.	1 4
*24.	Grand Trunk	W. Bethel, Me.	bc	F. & F.	4 1
27.	N. Y. N. H. & Hart.	Dorchester.	xc	F. & F.	1 1
Derailments					
Date	Road	Place	Cause of Derailment	Kind of train	Kil'd Inj'd
17.	Atlanta & W. P.	Fairburn.	unx	P.	0 0
†20.	Central of Ga.	Gold Ridge, Ala.	b. rail	P.	1 19
21.	Blue Ridge	Pendleton.	unx	P.	0 16
21.	Gulf C. & S. F.	Red. Oklahoma.	unx	P.	0 20
31.	Hudson & M.	Jersey City.	.....	P.	0 10

The trains in collision at Beacon Falls, Conn., on the evening of December 1, were a northbound passenger and a preceding northbound freight. The passenger train ran over a misplaced switch and into the rear of the freight train, wrecking the caboose and three freight cars. The engineman and the fireman of the passenger train were killed. Two trespassers, riding on the passenger train, were injured. The collision occurred about 6 p. m., and the freight had been standing on the side track about 40 minutes. Responsibility for the collision is charged against the conductor and the flagman of the freight train, the flagman having failed to close the switch.

The trains in collision at Price, Utah, on the 7th, were an eastbound mixed train, No. 138, and an eastbound bullion extra, No. 1206. Three passengers were killed and seven injured. The extra train was running in violation of the rule regulating the movements of extra trains within yard limits.

In the rear collision of freight trains at Brandtsville, Pa., on the night of the 13th, 1 locomotive and 1 caboose were badly damaged, and one trainman was killed and another scalded. The collision was due to negligence of the approaching engineman and of the flagman of the leading train.

The trains in collision at Carrollton, Ill., on the 15th, were freight trains No. 175 and No. 93, second section. The first-named struck the other at a crossing. Two trainmen were injured. The cause of the collision was the failure of No. 175 to approach the crossing under control.

The trains in collision at Troy, Ala., on the 19th, were southbound passenger No. 57, and a preceding freight, the passenger running into the freight and wrecking the caboose, which took fire and was burnt up. Two passengers were slightly injured. The freight train was on the time of the passenger without proper protection.

The trains in collision at Altoona, Pa., on the night of the 19th, were westbound passenger No. 21 and a freight switching in the yard. There was a dense fog at the time. The passenger train ran into the freight and the engine and two mail cars were damaged. The engineman was injured. The passenger train had run past a distant and a home signal set against it.

¹Abbreviations and marks used in Accident List:
rc, Rear collision—bc, Butting collision—xc, Other collisions—b, Broken—d, Defective—unf, Unforeseen obstruction—unx, Unexplained—derail, Open derailing switch—ms, Misplaced switch—acc, Obst., Accidental obstruction—malice, Malicious obstruction of track, etc.—boiler, Explosion of locomotive on road—fire, Cars burned while running—P. or Pass., Passenger train—F. or Ft., Freight train (including empty engines, work trains, etc.)—Asterisk, Wreck wholly or partly destroyed by fire—Dagger, One or more passengers killed.

The trains in collision at Frederick's Hall, Va., on the 22nd, were eastbound local freight No. 54 and a westbound train consisting of empty passenger cars. Both engines and three passenger cars and six freight cars were damaged. One fireman was killed and two other trainmen were injured. The eastbound train was at a standstill, about 300 feet east of the station.

The trains in collision near New Hartford, Conn., on the 22nd of December, were an eastbound regular freight and a westbound extra freight. Both engines and six cars were badly damaged. Both firemen were killed and seven other trainmen were injured.

The trains in collision at West Springfield, Mass., on the 22nd, were an eastbound train consisting of an engine and three passenger cars, carrying workmen home at night, and a switching freight, v. thin yard limits. The workmen's train ran into the rear of the freight and damaged the locomotive and one car. The fireman was killed and four other employees were injured.

The trains in collision near West Bethel, Maine, on the night of the 24th, were eastbound freight No. 548 and a westbound extra freight. Both engines and ten cars were wrecked, and the wreck took fire and was partly burnt up. The road was blocked 24 hours. Four trainmen were killed, and one was injured. The collision was due to the oversight of the men in charge of train 548, who ran past the appointed meeting station.

The trains in collision at Dorchester, Mass., on the evening of the 27th, were an express freight, and a passenger locomotive without train, passing through a crossover. The engineman of the freight was killed and one other trainman was injured.

The train derailed near Fairburn, Ga., on the night of the 17th was westbound passenger No. 37. The dining car was overturned and its occupants bruised and cut; but there were no serious injuries. The cause of the derailment was not discovered.

The train derailed near Gold Ridge, Ala., on the 20th, was westbound passenger No. 9. Four cars were overturned. One passenger was killed and 17 passengers and 2 employees were injured. The cause of the derailment was a broken rail. This rail broke into several pieces, and two internal transverse fissures were disclosed.

The train derailed near Pendleton, S. C., on the night of the 21st, was local passenger No. 30; and the rear coach was overturned. Sixteen of the thirty-seven passengers were injured, none very seriously.

The train derailed at Red, Okla., on the 21st, was southbound passenger No. 17, first section. About 20 passengers were slightly injured. The cause of the derailment was not determined. The driving wheels of the engine left the rails on a curve and, after running a few rods on the ground, tore up a switch; and this resulted in the derailment of the rest of the train.

The train derailed on the Hudson & Manhattan at Exchange Place, Jersey City, N. J., on the 31st, was a westbound passenger. Ten passengers were injured in this accident.

Electric Car Accidents. About 20 persons were injured in Chicago on the 8th, when a freight train of the Wabash, a street car, and an automobile came together on a grade crossing at Ninety-fourth street and Cottage Grove avenue. The accident occurred in a blinding snow storm.

Canada. In a rear collision on the Canadian Pacific near St. Polycarpe Junction, Ont., on the 27th, five passengers and one employee were killed and three passengers were injured. The trains in collision were an eastbound express and an eastbound mixed train. The cause of the collision was a misunderstanding of orders as to whether the superior train had passed the junction. The inferior proceeded ahead of, and on the time of, the superior train.

WILLIAM BAXTER BIDDLE

William Baxter Biddle, who has been elected president of the St. Louis-San Francisco Railroad, succeeding W. C. Nixon, deceased, as announced in these columns last week, enters on the duties of his new office with a wide experience on middle western railways. He has filled important offices on the Santa Fe, the Rock Island, the Chicago & Eastern Illinois and the Frisco.

Mr. Biddle is one of the growing number of railway presidents who have come up through the traffic department. He started in the operating department as a brakeman, and when the St. Louis-San Francisco was reorganized recently he was made vice-president, in charge of operation as well as traffic; but during the greater part of his career he has been a traffic man. Some years ago, when the power to make rates was largely taken from the traffic men by federal and state legislation, there were many who regarded with some pessimism the effect this would produce on their opportunities. As a matter of fact, since then relatively more of them have been made the chief executives of railroads than was the case before. Among the notable examples have been those of Darius Miller on the Burlington, J. M. Hannaford on the Northern Pacific, J. E. Gorman on the Rock Island, and William Sproule on the Southern Pacific. Mr. Biddle adds another to a now comparatively long list of prominent traffic men who were leaders in their field before effective regulation was introduced, who have continued to be leaders in their field under the new regime, and who, largely because of the marked ability they have shown to adapt themselves to the new conditions, have been rewarded by promotion.

He received most of his training in that excellent school which has turned out so many able men within recent years, the Atchison, Topeka & Santa Fe. He is a man of great force of character. He combines with this force of character qualities which make men popular in any walk of life, and which are especially valuable in any branch of salesmanship; and, after all, the traffic department of a railway is largely a selling department. Mr. Biddle has long recognized, however, that the traffic department should not only sell transportation, but should also help to create the traffic transported. He has been aware that the creation of traffic requires not only the location of people and of industries on a railroad, but also the giving of the service which is necessary to enable them to market their products in competition with the similar products of other people located in other communities. As a traffic man he has, therefore, always taken a keen interest not merely in the making of rates and the solicitation of business, but also and especially in the development of traffic, and in this line in particular the co-operation between the traffic and the operating departments of the Frisco for some years has been especially marked and effective.

Mr. Biddle has been connected with the Frisco now for

ten years. This has given him plenty of opportunity to acquaint himself with the road's territory, its organization and the people along its line. For some time before his death Mr. Nixon, who long had been the operating executive of the road, had been sick, and even before Mr. Biddle was formally given charge of the operating department, he, as one of the receivers, was giving much attention to its work. He therefore enters upon the performance of the duties of president with an experience and qualities of character and mind which can hardly fail to make him highly successful in his new work.

He was born at Beloit, Wis., on November 12, 1856, and was educated at that place. He entered railway service in 1878 as a freight brakeman on the Atchison, Topeka & Santa Fe. He subsequently was made a station agent. From 1882 to 1886 he was chief clerk to the general freight agent of the Atlantic & Pacific; from 1886 to 1887, assistant general freight agent, and from 1887 to 1888, division freight and passenger agent of that road. From 1888 to 1890 he was assistant general freight agent of the Atchison, Topeka & Santa Fe; from 1890 to November 1, 1894, assistant freight traffic manager, and from November 1, 1894, to March 1, 1905, freight traffic manager. In March, 1905, he was appointed third vice-president of the Rock Island Lines. In 1907 he was appointed vice-president in charge of traffic of the entire Rock Island-Frisco system, which consisted at that time of the Rock Island Lines, the St. Louis & San Francisco, the Chicago & Eastern Illinois and all of their subsidiaries. At that time this was one of the largest railway systems in the world over which a single traffic officer had jurisdiction.

When the Rock Island-Frisco system was broken up he went with the Frisco as vice-president in charge of traffic. When the Frisco went into receivership on May 27, 1913, he was ap-

pointed chief traffic officer, and on July 14, 1914, he was appointed receiver as well as chief traffic officer. When the road was taken out of receivers' hands last fall and reorganization was effected he was elected second vice-president in charge of both operation and traffic.

Mr. Biddle is a notably hard worker and always has spent a large amount of time out on the line. He does not give himself much recreation, but when he does his favorite pastime is golf.



W. B. Biddle

MEN OF THE L. & N.-W. WITH THE COLORS.—Of the men of the London & North-Western who have joined the colors, 749 have been killed in action, drowned, etc.; 360 have died from wounds; 132 have been reported missing and presumed dead; 109 are missing; 3941 have been reported wounded, and 197 are prisoners of war. Of the 3941 wounded, 2660 have returned to military duty. Of the prisoners, 177 are in Germany, 6 in Turkey, 2 in Bulgaria, 3 in Holland, and 9 in Switzerland.

General News Department

The freight house of the Carolina, Clinchfield & Ohio at Kingsport, Tenn., a new town, has been destroyed by fire; estimated loss, \$12,000.

The House of Representatives on Wednesday passed the post-office appropriation bill without the provision for an increase in the rates for carrying second-class mail matter.

The New Orleans, Texas & Mexico has filed with the Interstate Commerce Commission, a protest against the tentative valuation of its property which has been issued by the commission.

E. E. Reed, formerly Representative in Congress from New Hampshire, has been appointed president of the Manila Railway, Philippine Islands, which was recently taken over by the Government.

A. E. Barker, station master of the Oregon Short Line, at Salt Lake City, Utah, has received from the company a gold medal, given in recognition of his having the best kept station on the line.

By a fire at Freeport, Ill., on January 13, the division offices of the Illinois Central, together with the freight houses of that road and the Chicago & North Western, were destroyed; estimated loss, \$150,000.

The United States Civil Service Commission announces examinations, February 7, for the position of junior land appraiser, under the Interstate Commerce Commission; salary from \$900 to \$1,500. Applicants must be between 20 and 40 years old.

C. W. Nelson, whose resignation as vice-president of the St. Louis Southwestern was noted last September, has been appointed special representative of the commission on car service of the American Railway Association, with office in the Railway Exchange building, St. Louis.

Inter-car telephones were used recently on the Pacific Coast Special, which made the trip from San Francisco to the convention of Willys-Overland dealers at Toledo, Ohio. A daily newspaper called the Overland Daily Speed was published en route, being edited by newspaper men aboard the train. The printing work was done on a small press in the baggage car.

A circular calling upon automobilists to exercise caution at railway grade crossings, which has been prepared by the Safety Department of the New York Central, is being circulated throughout the State of New York by the co-operation of the Secretary of State at Albany, who in his letter to automobile owners in connection with the renewal of their certificates for the current year sends one circular to each owner. The number of these in New York is about 400,000.

The de facto government of Mexico is understood to have authorized the sale in the United States of junk estimated to have a total weight of 150,000 tons. This junk is now being collected along the lines of the different railways in the principal towns and cities. It is made up largely of scrap iron and other metals which have become useless by the destruction of railroad property, manufacturing plants and industries generally during the long period of revolution. Immense numbers of freight and passenger cars have been burned during the last six years, many locomotives wrecked and large numbers of manufacturing establishments destroyed.

The extensive improvements and alterations in the tracks and structures of the New York Central along the west side of Manhattan Island, New York, from Spuyten Duyvil southward to St. John's Park, which have been under consideration for many months, and have been made the subject of a contract between the railroad company and the city, are involved in a suit, begun in court this week, under which the city has been temporarily enjoined from proceeding with some details of the contract. After long negotiation, the officers of the city and the

railroad company are nearly ready to consummate the contract, but objections have been made by citizens who fear that the beauty of Riverside Park is to be permanently impaired; and other objectors, who claim that the city is submitting to a very bad bargain.

At a hearing before the House Committee on Interstate and Foreign Commerce on Wednesday on proposed bills to make strikes unlawful pending an investigation, Samuel Gompers, president of the American Federation of Labor, said that such a bill would not prevent strikes because it would not be obeyed and that he, for one, would violate such a law. H. B. Perham, president of the Order of Railroad Telegraphers, also opposed the bill. W. G. Lee, president of the Brotherhood of Railroad Trainmen, and Warren S. Stone, grand chief of the Brotherhood of Locomotive Engineers, have telegraphed Chairman Adamson of the committee that they will appear before it this week to protest against his new eight-hour law. In the Senate Committee on Interstate Commerce Senator Cummins introduced a proposed bill providing for the appointment of receivers on application to the department of justice in case of a strike.

Illinois Requires Uniform Signals at Highway Crossings

An order was issued by the State Public Utilities Commission of Illinois on January 10, requiring that, beginning April 1, 1917, all flagmen at railway grade crossings shall use for warning wayfarers white disks, 16 in. in diameter, with the word "Stop" painted upon them in black letters. The order also requires crossing gates to be painted in black with white diagonal stripes. In other words, the commission requires the adoption of the recommendation of the American Railway Association.

Baltimore & Ohio Fire Fighters

The Baltimore & Ohio announces the establishment of a new department of Fire Prevention, and the appointment of Harold L. Denton, as supervisor of Fire Prevention, reporting to Edmund Leigh, general superintendent of police. Mr. Denton will supervise the activities of the railroad's volunteer fire fighting force of employees. Special attention will be given to co-operation with local fire companies. Steps will be taken in the principal cities and towns to register the railroad's facilities with local departments, advising the fire chiefs of the location of water plugs on the property, the available hose and the pumping capacity of locomotives.

Tentative Valuation of the Winston-Salem Southbound

The Interstate Commerce Commission has made public a tentative valuation of the Winston-Salem Southbound Railway as of June 30, 1915. The original cost of common carrier property exclusive of lands was placed at \$5,153,996, the cost of reproduction new as \$5,121,188, and the cost of reproduction less depreciation as \$4,753,006. Carrier lands, 1,349 acres, are given a present value of \$431,614 and 388 acres of non-carrier lands are valued at \$105,310. The original cost of the lands is placed at \$401,546 and their present value as \$536,924. The company operates 89.99 miles of road. The cost of road and equipment account is stated as \$5,598,557 and the total capitalization as \$5,125,000.

The Hudson Signal

The Hudson Railway Signal Company of Richmond, Va., is the proprietor of a semaphore signal, operated by means of weights, which was tried near Richmond on the Chesapeake & Ohio, on Monday of last week. The mechanism is so designed that the arm of the semaphore is moved both to the clear and the stop positions by gravity. There are a number of large weights contained in a well beneath the mechanism case, and these operate the signal through a series of gears. The weights are controlled by a lock consisting essentially of a solenoid. In

the mechanism, which was tested, the signal can be cleared forty times; then the weights have to be wound up by means of a crank. The controlling mechanism outside the case is a two-element relay, each part having a brake wheel that is geared to the slot which regulates the gravity. Both relays must be de-energized before the slot will disengage. The test was witnessed by a number of officers of the road.

"The Story of the Freight Car"

This is the heading of a leaflet, making the usual appeal for promptness and economical methods in the use of cars, which the St. Louis-San Francisco has distributed among shippers. The salient feature of the circular is a series of drawings showing for 1906, 1910 and 1916 the average size of box cars and the average actual loading of all cars (on all roads). From these figures the circular shows how the 'Frisco ought to save 3,000 cars a day, as follows:

Number freight cars on line per day at 22.5 tons loading (the record for October, 1916).....	29,737 cars
Number freight cars required per day at 25.0 tons loading.....	26,763 cars
Saving	2,974 cars

Conservation of Natural Resources

The Chamber of Commerce of the United States is developing a plan for remedial legislation permitting agreements to conserve natural resources when such agreements are found to be in the interest of the public, the aim being, apparently, to suspend the anti-trust law so far as refers to the development of timber, ores and deposits of useful metal. It is proposed that the Federal Trade Commission be empowered to go beyond its present powers of investigation and formulate constructive plans for the benefit of producers, workmen and consumers.

In connection with its studies, the committee in charge finds that in the United States, each year, there are about 25,000 deaths which result from industrial accidents. In three industries—metal mining, coal mining, and lumber—with 1,400,000 employees in 1913, the number of fatalities was said to be almost exactly the same as among railway employees, although there were 300,000 more railway employees.

It is proposed to try to prevent waste. Only about 35 per cent of the total volume of lumber as it stands in the forest now reaches the ultimate consumer, most of the remainder being wasted. About 40 per cent of the coal in a seam is lost so far as beneficial utilization is concerned. Millions of barrels of oil are lost and a condition equally bad exists in connection with natural gas.

Station Efficiency Inspection on the Katy

With a view to further prevent loss and damage in the handling of freight, H. Bierman, freight claim agent of the Missouri, Kansas & Texas, at Parsons, Kan., has inaugurated a station efficiency check. He issued a circular naming 100 points in connection with the handling of freight from its acceptance and the issuance of bills of lading up to final delivery, on the basis of which traveling freight claim agents rate the efficiency of individual agents along the roads; and since the plan has been put into effect the number of points to be considered in the examinations has been increased to 200. They include methods of handling bills of lading, live stock contracts, conditions of loading and stowing, closing and sealing car doors, waybilling, unloading and assembling at warehouses, handling freight bills and receipts, the making of records, the general condition of offices and the attitude of agents and station forces toward the public. In short, the report concerning each station agent covers all the details in the handling of freight and the making of records in connection therewith.

So far, the Missouri, Kansas & Texas has undertaken to make but one check a year, but it is considering making two checks annually in the future. In the report a merit or demerit per point is given the agent according to his competency, as determined by the traveling freight claim agent. After the check is complete each station agent is graded and the pictures of those ranking 100 per cent, together with the names of those ranking over 90 per cent, are published, with an explanatory article, in the Employees' Magazine. In the first check eight agents ranked 100 per cent and in the second 13. The purpose of the inspection is not only to insure the proper handling of freight and the keeping of correct records, but to give agents due credit for care

and intelligence. In both of the checks so far taken, agents at large, intermediate and small stations were among those ranking 100 per cent.

The State Commissions and the Change of the Fiscal Year

On December 27, 1916, the president of the Association of American Railway Accounting Officers addressed a letter to the various state commissions, asking, in view of the action taken by the Interstate Commerce Commission, what plans the various state commissions were making for a change in the reporting year, from June 30 to December 31.

Below is a summary of the replies received, or information that the association has been able to gather from outside sources. The names of states from which no answer was received are omitted.

ALABAMA.—While commission is in favor of uniform year, no change can be made pending legislative action, next session being in 1919.

ARKANSAS.—Commission will issue order making change. Do not say when effective.

CALIFORNIA.—Have made change. Do not say when effective.

COLORADO.—Have issued order making change effective for the year ending December 31, 1916. General Order No. 28.

CONNECTICUT.—Legislative action necessary. Commission in favor of change.

FLORIDA.—Anticipating favorable legislative action. Change will be made and report required for year ending December 31, 1916.

GEORGIA.—Change authorized. Date effective not given.

IDAHO.—Will issue order making change, but do not say when effective.

ILLINOIS.—Order making change will be issued soon. Do not say when effective.

INDIANA.—Legislature now in session. Will be asked to make change. Will require report for the six months ending December 31, 1916.

IOWA.—Commission expects to ask legislature, now in session, to make change.

LOUISIANA.—Not yet formally considered by the commission.

MASSACHUSETTS.—Will ask for change in statutes, and require report for year ending December 31, 1916.

MICHIGAN.—Have issued order making change, and will require report for year ending December 31, 1916.

MINNESOTA.—Legislature will be asked to make change. Will require report for year ending December 31, 1916, and condensed statement for the six months ending December 31, 1916.

MISSOURI.—Will make change and require report for year ending December 31, 1916.

NEBRASKA.—Will ask legislature to make change. Will require report for year ending December 31, 1916.

NEW HAMPSHIRE.—Have issued circular making change, and requiring a report for the year ending December 31, 1916, and a condensed report for the six months ending December 31, 1916.

NEW YORK (First District).—"Governed by statute." No other remarks.

NEW YORK (Second District).—Will make change and require report for year ending December 31, 1916.

NORTH CAROLINA.—Has made change, and will, in future call for reports from railroad companies on this basis.

NORTH DAKOTA.—Will ask legislature, now in session, to make change. Will require report for the year ending December 13, 1916.

OHIO.—Circular has been issued. Will require report for year ending December 31, 1916.

OKLAHOMA.—Have made change. Will require report for year ending December 31, 1916.

PENNSYLVANIA.—Change made during 1916.

SOUTH CAROLINA.—Will not make change.

SOUTH DAKOTA.—Will change and require report for year ending December 31, 1916.

Texas.—Not yet formally considered, but probably will be at an early date.

WASHINGTON.—Has issued order making change. Will require report for the year ending December 31, 1916.

WISCONSIN.—Have issued order making change, and will require report for year ending December 31, 1916.

CANADA.—Legislative action necessary. Such action, however, not probable under present conditions.

Brotherhoods Decide Against Radical Action

Following a secret meeting of delegates of the railway brotherhoods at Chicago from January 11 to 13, inclusive, a formal statement was issued, signed by Warren S. Stone, grand chief of the Brotherhood of Locomotive Engineers, L. E. Sheppard, acting president of the Order of Railway Conductors, W. S. Carter, president of the Brotherhood of Locomotive Firemen and Enginemen, and W. G. Lee, president of the Brotherhood of Railway Trainmen. The statement reads as follows:

"The conference concluded its work today with the understanding that no radical action will be taken until the decision of the United States Supreme Court has been handed down in connection with the Adamson eight-hour law; that the association was unqualifiedly opposed to compulsory arbitration or compulsory investigation, such as contained in the Adamson bill introduced in the House of Representatives within the last few days. What further action, if any, will be taken depends largely on the decision of the supreme court in reference to the

constitutionality of the Adamson eight-hour law. The probability of a nation-wide strike is remote, although it may be necessary, on some roads or groups of roads, to use the protective feature of the organization in order to accomplish what we believe the President and Congress intended the men to have last August."

Hours of Service Report

The Interstate Commerce Commission has issued a statistical analysis of carriers' monthly hours of service reports covering all railroads which reported, during the year ending June 30, 1916, an aggregate respectively of 25 or more instances in which employees were on duty for periods other than those provided by the federal hours of service act, together with a comparative summary covering the fiscal years ending June 30, 1913, 1914, 1915 and 1916. The tables include an analysis of the primary contributing causes of delays responsible for the several instances of excess service. A comparative summary of all instances of excess service covering the four years is shown in Table 4 as follows:

	1913.	1914.	1915.	1916.
Employees in Train Service:				
Continuing on duty for longer periods than 16 consecutive hours.....	261,693	131,030	59,894	73,731
Returning to duty after 16 hours' continuous service without having had 10 consecutive hours off duty..	890	619	435	695
Returning to duty after aggregate service of 16 hours without having had 8 consecutive hours off duty..	269	293	141	211
Telegraph Operators:				
Continuing on duty after aggregate service of 16 hours.....	6,400	4,643	2,725	3,575
On duty more than 9 hours in continuously operated day-and-night offices.....	26,546	22,192	11,510	15,967
On duty more than 13 hours in offices operated only in the daytime.....	4,563	4,191	3,228	3,139
Totals	300,361	162,968	77,933	97,318

Five Months in Eight Years

In an interview at St. Joseph, Mo., R. M. Bacheller, division freight agent of the Atchison, Topeka & Santa Fe, at that city, said: The railroads at this time are being severely criticized for not having on hand enough cars to take care of the business that is offered. As a matter of fact it is unjust to criticize them when there has been only a period of five or six months in which any car shortage has existed. Since the close of 1907 there has been a vast surplus of idle cars. For instance, in April, 1908, freight cars standing idle on side tracks numbered 413,338. The value today of freight cars now used is about \$1,800 per car, but if we simply value the surplus cars in April, 1908, at \$1,000 each—their value at that time—we find that on an investment of \$413,000,000, the railroads were earning no return whatever. Five months out of eight years the railroads have been short of cars. The rest of the time they have been paying an enormous interest on borrowed money invested in surplus cars that were idle.

General Foremen's Association

The next annual convention of the International Railway General Foremen's Association will be held at the Hotel Sherman, Chicago, Ill., September 4, 5, 6 and 7, 1917. Committees have been appointed to report on the following subjects:

Engine Failures, Causes and Responsibilities. What Constitutes a Failure? W. R. Meeder, chairman, Chicago & Eastern Illinois, Danville, Ill.

Methods of Meeting the Requirements of Federal Inspection Laws. J. B. Wright, chairman, Hocking Valley, Columbus, Ohio.

Alignment of Locomotive Parts to Insure Maximum Service with Minimum Wear. B. F. Harris, chairman, Southern Pacific, Oakland, Cal.

What Interest Has the Locomotive Foreman with Car Department Matters? Charles Hobbs, chairman, Ann Arbor, Owosso, Mich.

The June Mechanical Conventions

The secretary of the Railway Supply Manufacturers' Association on January 13 sent out official circular No. 1 giving details concerning the annual exhibit of the association to be held at Atlantic City, June 13 to 20, in connection with the meetings of the Master Mechanics' and Master Car Builders' Associations.

With the circular were enclosed applications for space. The assignment of space will be made February 23 at the office of the association in Pittsburgh. The circular notes that "From early indications there will be an unusual demand for space. Those who apply promptly will have the advantage of location."

American Institute of Consulting Engineers, Inc.

At the annual meeting of the American Institute of Consulting Engineers, Inc., on January 15, 1917, held at the Engineers' Club in New York, the following members were elected to its council: Gardner S. Williams, A. M. Hunt, Lewis B. Stillwell and William J. Wilgus.

MEETINGS AND CONVENTIONS

The following list gives names of secretaries, dates of next or regular meetings and places of meeting of those associated which will meet during the next three months. The full list of meetings and conventions is published only in the first issue of the Railway Age Gazette for each month.

- AMERICAN ASSOCIATION OF DEMURRAGE OFFICERS.**—F. A. Pontious, 455 Grand Central Station, Chicago. Next meeting, January, 1917, New York.
- AMERICAN RAILWAY ENGINEERING ASSOCIATION.**—E. H. Fritch, 900 S. Michigan Ave., Chicago. Next convention, March 20-22, 1917, Chicago.
- AMERICAN SOCIETY OF CIVIL ENGINEERS.**—Chas. Warren Hunt, 220 W. 57th St., New York. Regular meetings, 1st and 3d Wednesday in month, except July and August, 220 W. 57th St., New York. Annual meeting, January 17-18, United Engineering Bldg., 25 W. 39th St., New York.
- AMERICAN WOOD PRESERVERS' ASSOCIATION.**—F. J. Angier, Supt. Timber Preservation, B. & O., Mt. Royal Sta., Baltimore, Md. Next convention, January 23-25, 1917, Hotel Astor, New York.
- CANADIAN RAILWAY CLUB.**—James Powell, Grand Trunk, P. O. Box 7, St. Lambert (near Montreal), Que. Regular meetings, 2d Tuesday in month, except June, July and August, Windsor Hotel, Montreal, Que.
- CANADIAN SOCIETY OF CIVIL ENGINEERS.**—Clement H. McLeod, 176 Mansfield St., Montreal, Que. Regular meetings, 1st Thursday in October, November, December, February, March and April. Annual meeting, January, Montreal.
- CAR FOREMEN'S ASSOCIATION OF CHICAGO.**—Aaron Kline, 841 Lawlor Ave., Chicago. Regular meetings, 2d Monday in month, except June, July and August, Hotel La Salle, Chicago.
- CENTRAL RAILWAY CLUB.**—H. D. Vought, 95 Liberty St., New York. Regular meetings, 2d Friday in January, May, September and November. Annual dinner, 2d Thursday in March, Hotel Statler, Buffalo, N. Y.
- CINCINNATI RAILWAY CLUB.**—H. Boutet, Chief Interchange Inspector, Cin'ti Rys., 101 Carew Bldg., Cincinnati. Regular meetings, 2d Tuesday, February, May, September and November, Hotel Sinton, Cincinnati.
- ENGINEERS SOCIETY OF WESTERN PENNSYLVANIA.**—Elmer K. Hiles, 2511 Oliver Bldg., Pittsburgh, Pa. Regular meetings, 1st and 3d Tuesday, Pittsburgh, Pa.
- GENERAL SUPERINTENDENTS' ASSOCIATION OF CHICAGO.**—A. M. Hunter, 321 Grand Central Station, Chicago. Regular meetings, Wednesday, preceding 3d Thursday in month, Room 1856, Transportation Bldg., Chicago.
- NATIONAL RAILWAY APPLIANCES ASSOCIATION.**—C. W. Kelly, 349 Peoples Gas Bldg., Chicago. Next convention, March 19-22, 1917, Chicago.
- NEW ENGLAND RAILROAD CLUB.**—W. E. Cade, Jr. 683 Atlantic Ave., Boston, Mass. Regular meeting, 2d Tuesday in month, except June, July, August and September, Boston.
- NEW YORK RAILROAD CLUB.**—Harry D. Vought, 95 Liberty St., New York. Regular meeting, 3d Friday in month, except June, July and August, 29 W. 39th St., New York.
- NIAGARA FRONTIER CAR MEN'S ASSOCIATION.**—Geo. A. J. Hochgrebe, 623 Brisbane Bldg., Buffalo, N. Y. Meetings, 3d Wednesday in month, New York Telephone Bldg., Buffalo, N. Y.
- PEORIA ASSOCIATION OF RAILROAD OFFICERS.**—F. C. Stewart, 410 Masonic Temple Bldg., Peoria, Ill. Regular meetings, 3d Thursday in month, Jefferson Hotel, Peoria.
- RAILROAD CLUB OF KANSAS CITY.**—Claude Manlove, 1008 Walnut St., Kansas City, Mo. Regular meetings, 3d Saturday in month, Kansas City.
- RAILWAY BUSINESS ASSOCIATION.**—Frank W. Noxon, 30 Church St., New York. Next annual meeting, January 16, 1917, Waldorf-Astoria Hotel, New York.
- RAILWAY CLUB OF PITTSBURGH.**—J. B. Anderson, Room 207, P. R. R. Sta., Pittsburgh, Pa. Regular meetings, 4th Friday in month, except June, July and August, Pittsburgh Commercial Club Rooms, Colonial-Annex Hotel, Pittsburgh.
- RICHMOND RAILROAD CLUB.**—F. O. Robinson, C. & O., Richmond, Va. Regular meetings, 2d Monday in month, except June, July and August.
- ST. LOUIS RAILWAY CLUB.**—B. W. Frauenthal, Union Station, St. Louis, Mo. Regular meetings, 2d Friday in month, except June, July and August, St. Louis.
- SOUTHERN & SOUTHWESTERN RAILWAY CLUB.**—A. J. Merrill, Grand Bldg., Atlanta, Ga. Regular meetings, 3d Thursday, January, March, May, July, September, November, 10 A. M., Piedmont Hotel, Atlanta.
- TOLEDO TRANSPORTATION CLUB.**—Harry S. Fox, Toledo, Ohio. Regular meetings, 1st Saturday in month, Boody House, Toledo.
- TRAFFIC CLUB OF CHICAGO.**—W. H. Wharton, La Salle Hotel, Chicago.
- TRAFFIC CLUB OF NEW YORK.**—C. A. Swope, 291 Broadway, New York. Regular meetings, last Tuesday in month, except June, July and August, Waldorf-Astoria Hotel, New York.
- UTAH SOCIETY OF ENGINEERS.**—Frank W. Moore, 1111 Newhouse Bldg., Salt Lake City, Utah. Regular meetings, 3d Friday in month, except July and August, Salt Lake City.
- WESTERN CANADA RAILWAY CLUB.**—L. Kon, Immigration Agent, Grand Trunk Pacific, Winnipeg, Man. Regular meetings, 2d Monday, except June, July and August, Winnipeg.
- WESTERN RAILWAY CLUB.**—J. W. Taylor, 1112 Karpen Bldg., Chicago. Regular meetings, 3d Monday in month, except June, July and August, Hotel Sherman, Chicago.
- WESTERN SOCIETY OF ENGINEERS.**—E. N. Layfield, 1735 Monadnock Block, Chicago. Regular meetings, 1st Monday in month, except January, July and August, Chicago. Extra meetings, except in July and August, generally on other Monday evenings. Annual meeting, 1st Wednesday after 1st Thursday in January, Chicago.

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF OCTOBER, 1916													
Name of road.	Average mileage operated during period.	Operating revenues			Operating expenses				Net from railway operation.	Railway tax accruals.	Operating income (or loss).	Increase (or decrease) last year.	
		Freight.	Passenger.	Total. (inc. misc.)	Way and structures.	Maintenance of equipment.	Traffic.	Transportation.					Miscellaneous.	General.	Total.
Staten Island Rapid Transit.....	24	\$47,375	\$50,808	\$109,500	\$15,558	\$18,382	\$1,113	\$57,097	.....	\$3,857	\$96,007	\$13,493	—\$34,433
Staten Island Rapid Transit.....	24	\$192,038	\$253,977	\$500,197	\$71,757	\$50,747	\$4,726	\$219,801	.....	\$11,740	\$358,771	\$141,426	—\$131,367
FOUR MONTHS FISCAL YEAR 1917													
FIVE MONTHS OF FISCAL YEAR 1917													
Boston & Maine.....	2,298	\$13,989,989	\$7,707,476	\$24,204,398	\$2,896,277	\$3,036,806	\$183,659	\$9,614,243	\$121,834	\$527,459	\$16,380,279	\$7,824,119	\$987,203
Buffalo & Susquehanna R. R. Corp.....	253	673,335	31,080	717,068	109,688	180,922	7,099	197,980	.....	30,027	525,716	191,352	3,533
Buffalo, Rochester & Pittsburgh.....	586	4,942,940	573,331	5,710,921	778,971	1,359,748	65,641	1,871,540	7,373	114,824	4,198,098	1,541,233	104,908
Canadian Pacific Lines in Maine.....	234	392,189	96,822	535,309	119,453	89,240	29,302	217,250	.....	20,550	475,785	59,524	52,529
Carolina, Clinchfield & Ohio.....	283	1,054,877	106,717	1,204,442	100,883	182,304	80,397	255,399	.....	56,805	673,271	531,172	62,999
Carolina, Clinchfield & Ohio of S. C.....	18	51,581	5,797	59,338	3,528	442	11,360	13,056	.....	4,261	32,642	26,924	—3,749
Central of Georgia.....	1,924	4,081,090	1,531,983	6,282,101	858,698	1,002,889	197,814	1,783,484	4,592	203,429	4,042,572	313,865	526,962
Central of New Jersey.....	684	10,656,381	3,134,320	14,875,785	1,222,053	2,497,377	170,869	5,097,189	78,676	343,580	9,406,781	4,747,810	48,075
Central New England.....	301	2,070,316	205,558	2,384,233	290,867	217,501	6,008	662,761	4,960	30,348	2,122,329	1,171,904	41,568
Central Vermont.....	411	1,249,066	473,693	1,905,896	255,159	282,404	46,523	798,875	11,246	47,694	1,441,902	463,995	29,786
Charleston & Western Carolina.....	342	645,272	160,251	849,263	142,263	121,502	22,203	261,775	19,836	19,836	567,381	281,882	59,723
Chesapeake & Ohio Lines.....	2,381	16,643,761	3,037,044	21,081,071	2,738,692	3,855,021	285,286	5,851,901	160,814	439,858	13,322,649	7,093,290	673,059
Chesapeake & Alton.....	1,053	5,383,638	1,918,822	8,056,731	943,044	1,628,566	194,981	2,587,734	54,953	167,035	5,544,042	2,512,689	509,756
Chicago & Eastern Illinois.....	1,136	5,356,483	1,330,568	7,246,433	1,043,742	1,791,644	125,677	2,465,677	38,855	195,372	5,638,642	1,607,791	158,771
Chicago & Erie.....	270	3,111,372	293,942	3,657,838	339,826	353,116	93,646	1,347,982	11,498	83,212	2,215,772	1,442,066	239,639
Chicago & North Western.....	8,108	29,997,117	10,259,411	44,804,309	5,339,177	6,551,349	587,927	14,720,398	294,753	839,968	28,373,114	16,431,195	2,971,065
Chicago, Burlington & Quincy.....	9,373	34,934,994	10,240,074	49,341,774	5,200,579	7,371,578	694,406	13,752,734	404,616	969,574	28,393,487	20,948,288	2,742,639
Chicago, Detroit & Can. Gd. Trunk Jctn.....	60	311,226	100,190	507,087	68,652	58,002	7,758	243,279	53,557	182,193	4,006,075	121,991	16,472
Chicago, Great Western.....	1,496	4,972,045	1,614,493	7,919,402	1,095,124	1,083,133	238,840	2,263,076	53,557	182,193	4,006,075	2,284,697	529,182
Chicago, Indianapolis & Louisville.....	622	2,492,879	859,146	3,627,039	386,591	614,422	105,690	1,127,536	2,418	84,319	2,315,163	1,311,876	218,615
Chicago Junction.....	13	1,084,025	125,540	1,084,025	125,540	108,349	5,987	606,520	2,470	24,770	871,174	212,851	196,873
Chicago, Milwaukee & St. Paul.....	10,208	36,190,119	9,160,554	50,200,150	5,300,656	7,493,114	17,231,268	17,231,268	328,273	821,739	31,209,510	18,990,640	680,326
Chicago, Peoria & St. Louis.....	255	612,340	132,108	788,427	115,552	171,856	28,484	309,225	.....	28,226	653,343	135,084	15,678
Chicago, Rock Island & Gulf.....	477	1,284,512	336,389	1,561,946	218,507	207,679	49,456	457,048	5,582	43,980	982,128	579,819	540,830
Chicago, Rock Island & Pacific.....	7,653	23,781,865	8,974,287	35,267,453	4,858,660	5,757,697	678,495	11,338,245	225,596	785,083	23,572,573	11,694,880	1,485,522
Chicago, St. Paul, Minn. & Omaha.....	1,753	6,244,398	2,495,186	9,483,525	1,216,926	1,137,640	150,614	3,187,825	84,063	210,655	5,980,681	3,502,844	660,103
Chicago, Terre Haute & Southeastern.....	373	1,112,868	83,608	1,230,823	161,678	204,424	342,281	5,838	5,838	40,756	973,031	257,793	48,800
Cincinnati, Hamilton & Dayton.....	622	3,624,060	566,342	4,737,712	670,818	675,546	78,989	1,679,235	16,875	94,905	3,199,569	1,538,143	252,450
Cincinnati, Indianapolis & Western.....	322	734,606	242,660	1,074,115	145,452	136,717	31,966	387,667	2,182	32,297	736,821	337,294	291,089
Cincinnati, New Orleans & Texas Pacific.....	337	3,831,387	918,313	5,030,239	392,470	1,081,807	130,903	1,305,929	29,512	102,404	3,043,026	1,987,213	699,943
Cincinnati Northern.....	246	734,256	92,414	858,306	124,861	147,583	17,993	261,819	16,060	16,060	568,316	289,890	38,987
Cincinnati, Northern, Chic. & St. Louis.....	2,384	14,120,787	4,673,355	20,365,907	2,106,853	3,654,360	449,114	6,608,890	133,345	410,842	13,376,594	7,167,313	1,235,029
Coal & Coke.....	197	386,875	94,010	499,656	102,228	127,472	4,994	140,962	7,748	15,025	390,701	108,955	4,523
Colorado Midland.....	338	695,357	113,623	866,295	142,774	159,954	35,054	354,058	26,830	26,830	726,419	139,877	79,794
Colorado & Southern.....	1,103	3,093,804	778,677	4,150,809	454,387	727,893	53,774	1,097,621	22,007	117,695	2,473,377	1,677,432	389,409
Cripple Creek & Colorado Springs.....	87	476,727	93,538	579,576	54,118	72,290	13,430	137,413	.....	16,098	294,249	285,327	7,969
Cumberland Valley.....	164	1,210,403	305,643	1,598,393	149,456	166,860	22,705	467,681	3,484	44,762	848,859	749,534	100,367
Delaware & Hudson Co.—R. R. Dept.....	886	9,207,220	1,592,644	11,481,634	933,799	2,215,510	150,127	3,931,030	107,206	414,983	7,741,670	3,739,963	293,250
Delaware, Lackawanna & Western.....	955	16,215,809	3,933,031	22,355,353	2,371,360	3,256,250	371,966	7,170,754	185,931	446,003	13,778,173	8,577,180	3,444,002
Denver & Rio Grande.....	2,578	9,054,592	2,033,135	11,877,365	1,309,199	1,819,125	208,086	2,957,227	155,108	323,639	6,772,385	5,104,980	59,679
Denver & Salt Lake.....	255	712,449	181,498	936,399	128,370	163,534	12,685	291,590	.....	25,155	620,946	315,453	40,378
Detroit & Mackinac.....	383	355,188	154,583	550,891	64,134	94,098	11,324	179,704	1,147	15,536	365,944	184,947	17,893
Detroit, Grand Haven & Milwaukee.....	191	871,000	305,000	392,000	23,878	191,568	28,304	710,218	4,349	25,920	1,184,237	212,356	192,168
Detroit, Toledo & Ironton.....	411	868,499	81,873	1,020,462	113,930	153,569	21,875	444,302	.....	30,709	764,557	255,905	20,667
Duluth & Iron Range.....	277	4,116,149	109,381	4,344,729	374,625	382,875	6,617	935,516	10,830	55,067	1,755,008	2,589,121	283,111
Duluth, Missabe & Northern.....	411	8,790,501	157,695	9,362,945	642,228	590,999	15,698	1,502,963	5,949	63,500	2,821,337	6,541,608	1,747,276
Duluth, South Shore & Atlantic.....	601	1,059,997	491,161	1,708,240	303,280	211,697	36,847	558,920	22,955	47,724	1,180,523	527,717	42,706
El Paso & Southwestern.....	1,028	4,465,141	1,025,245	5,708,007	582,848	622,562	91,906	1,298,040	33,793	135,369	2,764,519	3,013,489	1,368,294
Elgin, Joliet & Eastern.....	800	5,599,003	135	5,599,138	506,685	1,455,110	33,809	1,683,269	.....	102,991	3,772,744	2,189,399	352,302
Erie.....	1,988	2,669,779	4,311,758	28,763,300	2,626,808	6,111,248	465,786	10,686,515	197,220	624,639	20,671,785	8,091,515	3,586,263
Florida East Coast.....	756	2,299,779	564,114	3,186,585	274,910	408,058	38,623	888,693	16,569	89,093	1,700,302	1,486,282	1,047,643
Fort Worth & Denver City.....	454	1,865,351	722,916	2,719,618	272,625	425,134	37,919	741,299	14,442	81,194	1,577,614	1,142,095	190,607
Galveston, Harrisburg & San Antonio.....	1,361	5,343,444	1,659,892	7,405,576	746,991	903,729	161,053	2,195,538	51,703	184,120	4,224,499	3,181,077	1,449,222
Galveston, Wharf & Texas Central.....	14	677,734	35,407	1,137,801	142,186	211,382	38,188	381,765	44	44,731	818,272	319,529	61,752
Georgia, Southern & Florida.....	402	677,734	335,407	1,137,801	142,186	211,382	38,188	381,765	44	44,731	818,272	319,529	61,752
Grand Canyon.....	64	5,586	84,758	120,886	53,299	40,257	3,319	56,483	.....	844	118,201	2,683	—5,951
Grand Rapids & Indiana.....	575	1,555,571	853,712	2,650,071	301,031	409,343	5,943	1,028,673	14,506	86,885	1,894,583	755,488	6,203
Grand Tr													

Traffic News

The Baltimore & Ohio on Friday last placed an embargo on all export freight through Baltimore, this being found necessary to afford proper movement to ordinary merchandise traffic.

Hiram Ricker, proprietor of summer hotels in Maine, says that out of 9,181 guests at his hotels during the past season, only 1,851 came by railroad; that is to say, more than four-fifths of all these travelers came in their own automobiles.

The Morgan's Louisiana & Texas Railroad & Steamship Company on January 14 placed an embargo on all eastbound freight destined to New Orleans and Galveston. The Norfolk & Western has placed an embargo on shipments of coal west of Columbus, Ohio.

The Union Pacific recently discontinued serving liquor on dining cars in Wyoming, although there is no restriction on its sale in that state. The action of the Union Pacific makes the entire region from Chicago and the Mississippi river to the Utah and New Mexico state lines "dry" from a railroad standpoint.

The Transportation Club of Louisville, Ky., held its fifth annual dinner at Hotel Seelbach on January 10. The principal speaker was Frank Trumbull, chairman of the Railway Executives' Advisory Committee, and chairman of the board of the Chesapeake & Ohio, who addressed the club on "A Constructive Program and Opportunity."

In the United States Court at Boston last week, the Cape Cod Canal Company entered suit alleging damages of \$60,000 against the White Oak Transportation Company, owner of a vessel which ran aground on December 13, blocking the canal. The T. A. Scott Wrecking Company, which was employed to float the vessel, is also named as defendant.

The New York, New Haven & Hartford, in response to requests from the Worcester (Mass.) and Providence (R. I.) chambers of commerce is to run parlor cars once daily in each direction between those two cities for three months as an experiment. The schedules of several trains have been shortened to meet the demand for express service.

The Memphis (Tenn.) Traffic and Transportation Club has been organized with the following officers: President, V. D. Fort, assistant freight traffic manager of the Illinois Central; vice-president, W. A. Turner, general freight agent of the Southern; secretary-treasurer, John C. Ryan, general agent freight department Nashville, Chattanooga & St. Louis.

The Pennsylvania Railroad has increased the pay of a large number of clerical employees. This announcement was made in Philadelphia, but is said to apply to clerical forces throughout the company's lines. The increase is not uniform but is based on recommendations of heads of departments. Men receiving \$200 a month are said to have been advanced 4 per cent; others from 6 per cent to 11 per cent.

The Railroad Commission of Georgia will hold a hearing on February 13, at Atlanta, on the application of Swift & Company for the establishment of the "average agreement rule" in connection with demurrage tariffs; and on the application of the railroads for authority to make increases in the rate of demurrage on freight cars to correspond with increases which have been authorized for cars used in interstate traffic.

In the *Railway Age Gazette* of January 5, mention was made of statistics compiled by C. J. McDonald, assistant superintendent of transportation of the Southern Pacific, showing that a saving of 3,978 freight cars had been effected during October, 1916, by heavier loading. This was accomplished by averaging 1.1 tons additional in each car loaded. The figures are now available for November. Compared with the same month of the previous year there was a heavier average loading of 2.1 tons per car loaded, and a consequent saving of 6,932 cars. A comparison with October shows a heavier loading in November of 1.2 tons per car, or a saving of 3,867 cars.

Attorneys for the Illinois railroads conferred with Chief Counsel Folk of the Interstate Commerce Commission on Monday re-

garding the situation created by the refusal of Judge Landis of the United States District Court at Chicago to enjoin the operation of the Illinois 2-cent fare law to allow the railroads to make rates conforming to the commission's decision prescribing 2.4 cents as a reasonable rate. The commission's order went into effect on Monday and tariffs had been filed with the Interstate Commerce Commission for the interstate rates involved, although the State tariffs filed with the Illinois Public Utilities Commission had been suspended. It was too late to ask the Interstate Commerce Commission to suspend its order, but the roads explained that they had made every effort to comply with it. The roads will now perfect an appeal to the Supreme Court from Judge Landis' decision.

Evidence Introduced in Illinois Reconsignment Hearing

At a hearing before the State Public Utilities Commission of Illinois on January 10 and 11, at Chicago, the railroads introduced testimony, in addition to that given at previous hearings, designed to show the necessity for increased charges on the reconsignment of coal cars in Illinois. C. B. Cardy, general attorney for the Chicago & Eastern Illinois, who is conducting the case for the railroads, called several witnesses to show that the reconsignment of coal cars is a general practice, that it involves delay to cars, and that it exacts from the carriers an additional service for which they receive no compensation.

According to B. J. Rowe, coal traffic manager of the Illinois Central, 96 per cent of the total number of cars loaded with bituminous coal received over his road at Chicago in June were reconsigned, 80 per cent were reconsigned in October and 81 per cent in November. Mr. Rowe showed that there was a great lack of uniformity in reconsignment charges on coal cars in Illinois, and that this fact is one of the reasons prompting the railroads to ask for one schedule applicable to all points and all lines.

C. W. Galligan, assistant freight traffic manager of the Chicago & Alton, filed an exhibit with the commission showing the number of cars of coal for reconsignment orders at the Glenn (Chicago) yard from November 11 to 16, inclusive. During that period 200 cars were held a total of 842 days, the average delay per car being approximately 4.2 days. Of all cars coming to the Glenn yard in that time 75 per cent were reconsigned, of which number one-quarter awaited reconsignment orders one day or more. Mr. Galligan also produced statistics, taken from the records of his company, concerning a large number of cars of coal which an investigator of the Public Utilities Commission had found detained in the Glenn yards late in November. Contrary to the allegation of the coal dealers at a previous hearing that reconsignment orders on a large part of these cars had been delivered to the railroad previous to the arrival of the cars in the yard, 63 out of 86 cars were delayed from 1 to 14 days, waiting for reconsignment orders. The total delay of all cars was 184 days, or about 3 days per car.

F. H. Rutherford, superintendent of terminals of the Chicago & Eastern Illinois, at Chicago, testified that at 6 p. m. on November 13, there were in the Dalton (Chicago) yards of that road, awaiting reconsignment orders, 160 coal cars, which had been held from 1 to 18 days, and a total of 590 days, or about 3.7 days per car. J. F. Porterfield, general superintendent of transportation of the Illinois Central, introduced similar evidence of coal car detention on account of reconsignment for other points in Illinois. He also introduced exhibits showing items of expense, both computable and otherwise, incidental to reconsigning coal en route, during November, 1916, at Champaign, Ill., Kankakee and Matteson. The exhibit for Champaign is as follows:

AVERAGE COST PER CAR OF RECONSIGNING COAL.	
104 cars reconsigned; average yard engine time per car 35 min., at \$5 an hour.....	\$300.00
Telegraph operators' time per car, 10 min.....	
Receiving operator	5.80
Sending operator	(?)
Interest, depreciation, maintenance, supervision of telegraph lines.....	(?)
Yard clerical expense	(?)
Time for closing files on 48 cars the billing on which had been changed prior to arrival	\$2.67
Time for closing files on 44 cars that had passed before reconsigning orders were received	2.45
Time for closing files on 128 cars that did not pass the terminal....	7.12
15 cars delayed 45 days at 75 cents per day (per diem charge)....	11.25
Telegraph expense on cars already reconsigned that had passed before order was received and that did not pass terminal.....	(?)
Expense incident to handling these reconsigning orders at source of origin	(?)
Total	\$329.29
Average per car, \$3.16.	

Mr. Porterfield also filed an exhibit showing in detail the items of expense entering into the cost of operating the yard engine, which he found to be \$5 an hour per car.

W. G. Wagner, assistant general freight agent of the Chicago, Burlington & Quincy at Chicago, filed a statement with the commission enumerating in detail the clerical work involved in transmitting reconsignment orders.

M. F. Gallagher, attorney for the coal dealers, argued that carriers are compensated for reconsignment in their freight rates. He stated that the railroads had cited reconsignment as a part of the cost of operation covered by the freight rates in their application for a five per cent increase per ton in coal rates in Illinois. He also contended that it is an unjust discrimination to single out coal alone, for higher reconsignment charges. In a large terminal like Chicago, he said, reconsignment is a positive aid to railway operation, in that it releases cars to yards which at the time are in need of coal and capable of unloading it.

William J. Womer, traffic manager of the Consumers' Company, Chicago, introduced evidence to show that the service of the railroads in transporting coal in Illinois is irregular. His testimony occasioned a dispute between the attorneys which resulted in a request on the part of the commission that he produce data at the next hearing showing the transportation time for each car of coal coming from Illinois mines which was delivered to the Consumers' Company on November 13.

The hearing was resumed this week.

The hearing by the Illinois Public Utilities Commission on the complaint about reconsignment charges on coal was closed on Wednesday, and the commission is expected to issue an emergency order expiring April 1. The coal dealers argued that reconsignment privileges should not be curtailed because the demand for coal fluctuates greatly with the weather and transportation is so irregular that they do not know when cars are going to arrive. The carriers introduced testimony to show that the great bulk of coal shipments move with regularity. On November 14, Illinois Central shipped 250 cars to Chicago from Illinois mines over distances varying from 170 miles to 338 miles; and 51 per cent of these arrived within two days; 85 per cent within three days; 94 per cent within four days. Over 99 per cent of the whole arrived within five days.

Freight Car Shortage Relieved

J. E. Fairbanks, secretary of the American Railway Association, reports that statistics covering the whole country show that the shortage of freight cars, which was most serious in November, had decreased by January 1, about 50 per cent. The shortage on November 1 was 114,908, on December 1 it was 107,778 and on December 31 it had fallen to 59,892 cars.

The officers of the association attribute this decrease in the shortage mainly to the co-operative efforts of the Interstate Commerce Commission, shippers and the railroads. The special committee of the American Railway Association has carried out emergency measures to meet the abnormal situation, and progress has been made in getting cars out of the congested districts into the territory where they are most needed.

George Hodges has been chosen chairman of the Commission on Car Service, in place of Fairfax Harrison, resigned.

Coal Famine at Chicago

The shortage of coal in Chicago is now so widely felt that Mayor Thompson has called a conference of coal dealers and railroad officers to meet at once and discuss ways to relieve the shortage. The Illinois Public Utilities Commission has summoned the local railroads to appear in the person of the president or resident executive on Thursday (January 18) to discuss means for expediting the delivery of coal cars now within the Chicago switching district. Some schools and other public institutions have been forced to close for lack of fuel. Although the largest Chicago coal roads—the Burlington, the Chicago & Eastern Illinois, the Illinois Central and the Alton report that coal deliveries are greater than a year ago, and that daily deliveries average about 1,000 cars, the fact remains that there has been less eastern coal received this winter than in former years. The Norfolk & Western embargo on shipments going west of Columbus, Ohio, and the Chesapeake & Ohio embargo west of Cincinnati, just placed, are already felt by Chicago dealers.

Commission and Court News

INTERSTATE COMMERCE COMMISSION

The commission has resuspended until July 13 tariffs providing for the cancellation of express rates on fish from certain points in Manitoba, Canada, to Detroit, Buffalo and New York.

The commission has resuspended until July 20 increased rates for bedding single-deck and double-deck live stock cars applicable in connection with traffic originating in southwestern territory.

The commission has resuspended until July 23 items in a supplement to R. H. Countiss' tariff increasing rates on lumber and other forest products originating in Pacific coast territory to stations in Michigan.

The commission has resuspended until July 16 a tariff providing for the cancellation of joint rates on soft coal from the Oak Hills district in Colorado to stations in Kansas, Nebraska, Missouri and Iowa.

The commission has resuspended until July 13 tariffs providing for increases in the rates on smoking tobacco and other tobacco products from Virginia and North Carolina points to southeastern destinations.

The commission has resuspended until July 29 increased commodity rates on fuel wood proposed by the Chicago & North Western from various points in Michigan to Sheboygan, Milwaukee and other points in Wisconsin.

The commission has resuspended until July 18 tariffs of the Chicago, Milwaukee & St. Paul providing for the cancellation of proportional commodity rates on lignite coal from Edgeley and Linton, N. D., to points in South Dakota.

The commission has suspended until May 12 tariffs of the Virginian Railway increasing rates on logs and rough lumber between points on its line to be worked into finished stock or manufactured product for reshipment to interstate points.

The commission has fixed Monday, January 29, at 10 a. m. at Washington, D. C., for the hearing in the matter of the valuation of the property of the Atlanta, Birmingham & Atlantic, the Georgia Terminal Company and the Alabama Terminal Railroad Company and of the Texas Midland.

The commission has resuspended until July 8 the operation of a provision in a tariff filed by E. B. Boyd providing for the withdrawal of a rule for the cancellation of freight charges where a portion of a shipment has been lost or damaged by the carrier and a duplicate is forwarded to replace it.

C. E. Schaff, receiver of the Missouri, Kansas & Texas, has filed with the commission a complaint relative to the discrimination against interstate passengers which is caused by the rapidly increasing practice of buying tickets at two cents intrastate rates to defeat the interstate rates prescribed in the tariff. He asked the commission to make an investigation and issue the necessary orders.

Advances on Export Grain Approved

Opinion by Commissioner Daniels:

Propriety of proposed increased carload rates on wheat, oats, rye and flour from certain points in Wyoming and Colorado to Galveston, Tex., and other Gulf ports, for export, established. Orders of suspension vacated. (42 I. C. C., 114.)

Charge for Cleaning Stock Cars

Hammond, Standish & Co. et al. v. Michigan Central et al. Opinion by Commissioner McChord:

Tariffs naming charges for cleaning and disinfecting cars carrying interstate shipments of live stock to Detroit, Mich., in compliance with regulations issued by the United States Department of Agriculture to prevent the spread of contagious, infectious or communicable diseases, held to be lawful, and charges

assessed in accordance therewith found to be reasonable. Contention of complainants that charges for cleaning and disinfecting cars are not properly collectible on shipments forwarded to Detroit for immediate slaughter not sustained. (42 I. C. C., 102.)

The Jersey City Demand for Reduced Freight Rates

Examiner Wilbur La Roe, Jr., has continued, in New York, the past week, the hearing begun January 9 and reported in the *Railway Age Gazette* January 12, page 71, on the petition of New Jersey interests for a reduction in the rates on freight to and from the west.

B. F. Cresson, Jr., chief engineer of the New Jersey State Board of Commerce and Navigation, testified at length concerning transportation conditions in New York harbor. He believes that the cost of distributing freight around the harbor by water, from the New Jersey railroad terminals, is much more than the 60 cents a ton which is usually allowed for that service by the railroads; perhaps two or three times as much.

Representatives of New York interests presented data showing how manufacturers had moved from New York to New Jersey, and elicited from New Jersey people the acknowledgment that with more energetic application of capital and the introduction of better business principles the business of the Jersey City region could have been improved without a change in freight rates.

Jersey City manufacturers were put on the stand to tell of unfavorable conditions at their plants in relation to the receipt and shipment of carload freight; this to show that Jersey City, as compared with New York City, was not receiving fair treatment.

The secretary of the Board of Trade of Newark, N. J., 9 miles west of New York, said that that city had been trying since 1904 to secure freight rates more favorable to Newark, as compared with New York City, but had had no success.

Reilly Williams, formerly in the service of the Delaware, Lackawanna & Western, at its Jersey terminal, gave a mass of evidence concerning the lighterage service, rates for transportation and for use of cars, and other features of the New York City freight situation.

William A. Glasgow has been engaged by Philadelphia mercantile interests to appear at the hearings to see that Philadelphia rates are not unduly disturbed by anything which may be done to favor Jersey City.

STATE COMMISSIONS

The Montana Railroad & Public Service Commission, which some time ago denied an application of the railroads for higher demurrage rates, has granted a rehearing of the case.

The long-continued hearing before the Georgia Railroad Commission on proposed general increases in freight rates in that state, which was adjourned to February 5, has been again postponed to March 1.

The State Public Utilities Commission of Illinois held a hearing at Chicago on January 17, for the purpose of considering additions and changes in the commission's classification of a large number of miscellaneous commodities.

Another New York Report

The New York State Public Service Commission for the First District, embracing the city of New York, has issued its tenth annual report. The commissioners are Oscar S. Straus, chairman; William Hayward, Henry W. Hodge, Travis H. Whitney and Charles S. Hervey. The largest department of the commission's work is the construction of new subways and elevated railroads. Construction contracts to the extent of about \$24,000,000 were awarded during the year. Extensive reductions have been made in the rates charged for current by electric light and power companies and those of some gas companies.

At the end of the year rapid transit construction contracts, according to the Dual System plans, had been awarded for 81 out of the 87 sections into which the work is divided, leaving only six main contracts yet to be awarded. The lines lie in four of the five boroughs of the city. Several new lines will probably be opened this year, including the Lexington avenue and the Seventh avenue lines. Contracts yet to be let include two sections of

the Nassau street link, connecting the Chambers street terminal of the Brooklyn Rapid Transit system with the Whitehall street tunnel, and the section of the Steinway tube at Forty-second street, from Park to Seventh avenues.

The diagonal station at Forty-second street and Park avenue is now well enough along to warrant the hope that the line on Lexington avenue may be open for operation only next fall. It is hoped that by that time the lines on Jerome avenue and White Plains road can be opened. On the Seventh avenue line many of the sections are finished.

It is anticipated that the Astoria extension in Queens, connecting with the Steinway tunnel and the Second avenue elevated line, will be put in operation within a few months. The Broadway subway in Manhattan, much of which is finished, may be opened between the Battery and Fourteenth street in 1917, but it is more probable that the partial service will extend south only to Canal street, where there is to be a crosstown connection with the bridges. By spring the new Jamaica avenue elevated extension of the Broadway line from Crescent street, Cypress Hills, Long Island, will be operated as far as Walnut street. The New Utrecht avenue line, which has been in operation since last summer for practically its whole length, will be connected to the new terminal at Coney Island before the rush of summer traffic begins.

It is estimated that the total cost of construction of city-owned lines now included in the commission's plans will be approximately \$252,000,000. Of this sum the city will provide about \$180,000,000, the Interborough Rapid Transit Company \$58,000,000, and the New York Municipal Railway Corporation (Brooklyn Rapid Transit Company) \$14,000,000.

During the year the engineers of the commission inspected materials intended for use in subway construction to a total estimated value of \$14,500,000. The inspectors visited 329 manufacturing plants, located in 194 cities and towns situated in 17 states.

The number of corporations under the jurisdiction of the commission at the close of the year was 103, of which 73 were operating and 30 lessor companies. The amount of securities authorized by the commission in the year aggregated \$16,808,000 in par value.

PERSONNEL OF COMMISSIONS

Dwight N. Lewis, whose appointment as a member of the Iowa Board of Railroad Commissioners was announced in the *Railway Age Gazette* of January 12, was born near Oskaloosa, Ia.

He left high school in 1888, to become a stenographer in the office of the Iowa Board of Railroad Commissioners, and has remained in the employ of the board ever since. He was made secretary to the board in 1899, and served in that capacity until 1911, when he was appointed assistant commerce counsel, which position he held until his recent appointment, noted above. As a member of the board, he succeeds Clifford Thorne, who has resigned to become special counsel of the National Livestock Shippers' Protective Association.



D. N. Lewis

W. J. Bienemann, statistician of the Public Service Commission of West Virginia, has resigned, to become president of the State Utility Audit & Investigating Company, of Charleston, W. Va. Mr. Bienemann was formerly and for several years secretary and auditor of the Kanawha & Michigan; and also had been in the railway service, before that, on the Grand Rapids & Indiana, the Pere Marquette, the Chicago, Milwaukee & St. Paul, the Illinois Central, the Delaware & Hudson, and the New York Central.

COURT NEWS

In a case recently decided by the Nebraska Supreme Court the constitutionality of a state statute requiring railroads, express and telegraph companies to maintain telephones in stations and public offices for the convenience of the public, when so ordered by the state railway commission, was upheld. The case went to the court on an appeal by the Missouri Pacific from an order of the state railway commission.

Railroads Lose Passenger Case Before Judge Landis

In an opinion delivered on January 13, Judge Kenesaw M. Landis, in the United States District Court at Chicago, denied the application of the railroads for a permanent injunction restraining the attorney-general, the state's attorneys, and the State Public Utilities Commission of Illinois from interfering with new passenger tariffs of 2.4 cents a mile, scheduled to become effective in that state on January 15. The decision left the carriers in the difficult position of either permitting the old two-cent rate to continue in operation, thereby making themselves liable to prosecution by the Interstate Commerce Commission, or of putting the new tariffs in effect and facing penalties for violating the Illinois statute. A legal committee consisting of Messrs. A. P. Humburg, commerce attorney of the Illinois Central; J. B. Payne, general counsel of the Chicago Great Western; R. B. Scott, general attorney of the Chicago, Burlington & Quincy; W. F. Dickinson, general attorney of the Chicago, Rock Island & Pacific, and T. J. Norton, general attorney of the Atchison, Topeka & Santa Fe, will handle further legal procedure for the railroads. Some members of this committee went to Washington, immediately after Judge Landis rendered his decision, for the purpose of asking the Interstate Commerce Commission for an extension of time within which to put the 2.4 cent tariff in operation. Steps have also been taken to appeal the case to the United States Supreme Court.

Judge Landis said, in part: "The undoubted purpose of the words of the Interstate Commerce Commission used in its order of October 16, was to completely nullify the Illinois two-cent rate and to substitute for it its authority, on the theory that the substitution was not merely authorized, but required in the discharge of its duty. The carrier took the order of the commission and decided to remove the discrimination as to St. Louis and Keokuk, by raising the Illinois rate to 2.4 cents. Instead of the order having repealed the Illinois statute, the fact is, it was the traffic official of the railway, when he exercised his choice under this alternative order, who repealed the statute and who made it, in the view of the counsel for the plaintiffs, unconstitutional. When he chose to raise the Illinois rate to the interstate 2.4 cent rate, he found that the order of the commission contained such an arrangement of English words that he need not limit himself to relieving St. Louis and Keokuk, but he was given authority to substitute a 2.4 cent rate between all intra-Illinois points. It is true he called it relieving St. Louis and Keokuk, but in no place outside of a court room would any man be heard to assert that when you require the passenger traveling from Evanston, Ill., to Wilmette to pay seven cents instead of six cents, you are relieving St. Louis, Mo., and Keokuk, Iowa, of a discrimination.

"It is my opinion that there is no possible power in the Interstate Commerce Commission, under the guise of relieving St. Louis and Keokuk of discrimination, to repeal the Illinois two-cent fare law. Under Judge Hughes' decision it has the power to supersede that law insofar as it is necessary to relieve St. Louis and Keokuk of discrimination. They have not chosen to limit their action to that result, which is the only result the petitioning and intervening business men's associations asked; they have gone beyond and carried their action to the finality that the court has indicated, which, in my view, is completely and obviously beyond the power of the commission."

In discussing Judge Landis' decision, counsel for the carriers said that the Interstate Commerce Commission had full power, under the doctrine of the Shreveport case, to decide whether or not discrimination did exist, and finding it, to order its removal. In this case it authorized an advance in all fares in Illinois to 2.4 cents a mile which is the present interstate fare established by the commission's order in the western passenger fare case. Intrastate fares on a lower basis than 2.4 cents could be used to defeat the lawful fares as authorized by the commis-

sion, as stated. St. Louis and Keokuk could not be relieved by establishing zones in Illinois where the 2.4 cents rate would apply, as that adjustment would create new discrimination within the state and would be absolutely impracticable.

Subsequent Changes in Signals Excluded as Evidence

The North Carolina Supreme Court holds that subsequent changes in signals or the installation of warnings for additional safety were properly excluded as proof of negligence in an action for the death of one killed by his automobile being struck by defendant's train. The court cited *Columbia & P. S. v. Hawthorne*, 144 U. S. 292, where it was said that a person may have exercised all the care which the law required, and yet, in the light of his new experience, after an unexpected accident has occurred, and as a matter of extreme caution, he may adopt additional safeguards, and it would be unjust that he could not do so without being liable to have such acts construed as an admission of prior negligence. The same rule is well settled in England.—*McMillen v. Atlanta & Charlotte Air Line* (N. Car.) 99 S. E. 683.

Sudden Storm an Act of God

A passenger was carried beyond her station and compelled to alight at another station and walk back. A sudden storm caused her to get wet. In an action for personal injuries, caused thereby, the North Carolina Supreme Court held that the storm was an independent, intervening, and unexpected cause, the act of God, which the negligence of the railroad did not set in motion, and for which it was not liable.—*Garland v. C. C. & O.* (N. Car.), 90 S. E. 779.

Punitive Damages for Delay—When Not Recoverable

The South Carolina Supreme Court holds that under the Carmack Amendment as to a carrier's liability for "loss, damage or injury" to goods delivered to it for shipment, punitive damages were not recoverable against a carrier for wilfulness or wantonness of its servants in delaying transportation of goods shipped, where it did not appear that the carrier authorized or ratified such acts, notwithstanding the later enactment of the Cummins Amendment, providing for liability of the carrier for the full "actual loss" of goods shipped.—*De Loach v. Southern* (N. Car.), 90 S. E. 701.

Consignee Must Receive Partially Damaged Goods

The North Carolina Supreme Court holds that where goods are damaged in transit through causes for which the carrier is responsible, and the loss is partial, the consignee cannot refuse to accept them and sue for their value; he must receive the goods with the right to recover damages actually sustained. His damage is the difference between the reasonable market value of the goods on arrival in the condition they then were in and what should have been their reasonably fair value on arrival but for the injury.—*Whittington v. Southern* (N. Car.), 90 S. E. 505.

From the time that a carrier refuses to pay for damages to a shipment of goods, it is the consignee's duty to take them, they not having become worthless by the carrier's act, with right to sue for damages; so that not taking them he is liable for storage charges.—*Holloman v. Southern* (N. Car.), 90 S. E. 292.

Trespassers Crossing Switchyards

In a Kansas City suburb a railroad had a yard of many tracks, which it had been common for people to cross for years notwithstanding a warning sign, "Railroad property; no trespassing." There was a convenient highway over a viaduct across the yard near-by. A plain path across the tracks had been worn by public travel. When cars impeded the travel, the pedestrians would go around the cars, or over or under them. A pedestrian was injured by some moving cars while crossing and sued the railroad. The Kansas Supreme Court holds that, in the absence of evidence that his injuries were caused by the willful negligence of the railroad or its employees, he could not recover. No public way is established across a yard merely because pedestrians for many years had so frequently trespassed thereon that they had worn a beaten path.—*Mallot v. Union Pacific* (Kan.), 160 Pac., 978.

UNITED STATES SUPREME COURT

The Supreme Court of the United States on Monday last sustained the "Mann act," otherwise known as the white slave law. It is held to prohibit interstate transportation of women for "any" immoral purpose, including private escapades as well as commercialized vice. The opinion, by Justice Day, says that while Congress may have intended the law to prohibit only traffic in women for pecuniary gain its plain terms included interdiction of their transportation "for any other immoral purpose." If it was not so intended it is the function of Congress, not the courts, to amend the law. The ruling affects many pending cases, including that of Jack Johnson, the negro pugilist, who is a fugitive from justice. Whether the law makes "accomplices" of women involved in personal escapades was not definitely decided by the court, but their testimony against men indicted was upheld as permissible. The court divided five to three. Chief Justice White and Justices McKenna and Clarke, in a minority opinion, held that Congress intended to have the law apply only to actual "traffic" in women, and not to personal immoralities. Justice McReynolds, who was attorney general during the prosecution of the suits, took no part in the cases.

Verdict of "Five-Sixths" Jury Sustained

In an action for personal injuries sustained by a machinist by having his hand crushed by an engine while repairing it, the plaintiff obtained a verdict and judgment in the state courts against the Minneapolis & St. Louis for \$8,400, given by 10 out of 12 jurors under the Minnesota "five-sixths" law. This has been affirmed by the Supreme Court of the United States, following its decision in *Minneapolis & St. Louis v. Bombolis*, 241 U. S. 211 (1916), where it was held that, while the Seventh Amendment exacts a jury trial according to the course of the common law, that is, by a unanimous verdict, the amendment applies only to proceedings in courts of the United States, and does not in any way govern or regulate trials by jury in state courts, nor does it apply to an action brought in the state court under the federal employers' liability act.—*Minneapolis & St. Louis v. Winters* (decided January 8, 1917).

Railroads Lose Mail Divisor Case

The Supreme Court on Monday by an evenly divided court affirmed the judgment of the Court of Claims, in the suits of the Chicago & Alton and the Yazoo & Mississippi Valley, sustaining the validity of an order issued by the postmaster-general in 1907, prescribing that the whole number of days included in the weighing period upon which the compensation paid to the railroads for the carriage of mails is based, shall be used as the divisor for obtaining the average weight of mails carried per day. The railroads, which had appealed from the decision of the Court of Claims, contended that an allowance should be made for the smaller volume of mails on Sundays, as had been done prior to 1907. The amount involved in the claims of the railroads for back pay was estimated at about \$42,000,000. Justice McReynolds took no part in the decision of the case; and because of the evenly divided court—four to four—no opinion was written.

Liabilities for Loss of Freight Stored in Transit

The Western Transit Company, operating steamers on the Great Lakes, formed, with the New York Central, a "lake and rail" line between Michigan and New York City. Among the facilities offered was four months' free storage of copper in transit, at Buffalo. A quantity of copper ingots shipped from Houghton, Mich., to New York, was stored at Buffalo. Nearly four months later about one ton of it was stolen from the warehouse. In an action in the courts of the state of New York the company was held liable for the full value of the copper stolen, \$271 (165 App. Div. 947). The carrier brought the case before the Supreme Court of the United States on the question of the measure of damages, contending that the damages recoverable were limited to \$94.10. Freight was paid at 18 cents a ton under a bill of lading naming the following rates:

Copper ingots, value not to exceed \$100 a ton, 18 cents.
Copper ingots, value not expressed, 30c.

The shipper insisted that it was enforcing the liability of the Transit Company not as carrier, but as warehouseman, but the Supreme Court enforced the stipulation of the bill of lading, and the judgment of the state court was reversed.—*Western Transit v. Leslie Company* (decided January 8, 1917).

Railway Officers

Executive, Financial, Legal and Accounting

Fairfax Harrison, president of the Southern Railway, with headquarters at Washington, D. C., has been elected president also of the New Orleans & Northeastern, succeeding Larz A. Jones, resigned.

G. H. Gray, commercial agent of the Chicago, Burlington & Quincy, with office at St. Louis, Mo., has been elected president of the Kansas City Union Depot, Bridge and Terminal Company, with headquarters at Kansas City, Mo.

The executive and general officers of the Wheeling & Lake Erie Railway which has acquired the lines of railroad formerly owned by the Wheeling & Lake Erie Railroad and heretofore operated by a receiver, are now as follows: L. F. Loree, chairman of the board, New York; W. M. Duncan, president; H. W. McMaster, vice-president and general manager (operation and traffic); J. G. Stidger, secretary and treasurer; C. H. Holmes, auditor; Squire, Sanders & Dempsey, general counsel. All have headquarters at Cleveland, Ohio, except Mr. Loree. The other officers and employees formerly employed by the receiver will continue in the service of the Wheeling & Lake Erie Railway and will perform their respective duties as such until otherwise directed.

The New Orleans & Northeastern having by a purchase of stock from English interests come into control of the Southern Railway interests, the management of the Alabama & Vicksburg and the Vicksburg, Shreveport & Pacific is now entirely distinct from that of the New Orleans & Northeastern. The offices of the Alabama & Vicksburg and Vicksburg, Shreveport & Pacific remain at New Orleans, and the organization of those lines is as follows: Larz A. Jones, president and general manager; E. Ford, assistant to president; J. Blanc Monroe, general counsel; W. J. Kelleher, purchasing agent and secretary; Udolpho Wolfe, treasurer and assistant secretary; H. H. LeRoy, auditor; H. T. White, freight claim agent; A. J. Chapman, freight traffic manager; J. D. Youman, general freight agent; H. B. Sargent, superintendent of transportation, all with headquarters at New Orleans, La.; W. V. Harvey, superintendent, A. & V., at Vicksburg, Miss.; H. B. Hearn, superintendent, V. S. & P., at Shreveport, La.; A. G. Kantmann, superintendent motive power, at Meridian, Miss.; H. J. Rhodes, engineer of maintenance, at Vicksburg, Miss.; and E. M. Tutwiler, Jr., land commissioner, at Birmingham, Ala.

The lines of the Southern Railway Company, the Cincinnati, New Orleans & Texas Pacific, the Alabama Great Southern, the New Orleans & Northeastern and the Northern Alabama will hereafter be grouped for the purpose of administration as lines east and lines west of the Southern Railway System. No consolidation is planned, but the corporate identity of all lines affected will be preserved as heretofore. The lines east will be made up of those portions of the system east and north of the old E. T. V. & G. line from Chattanooga to Brunswick. The lines west will be made up of the other lines of Southern Railway, including the C. N. O. & T. P. and the A. G. S. Railroad, the N. O. & N. E. Railroad and the Northern Alabama Railway. J. M. Culp, for many years vice-president of the Southern Railway, in charge of the traffic department, at his own request, has been retired from active duty, and will hereafter serve in an advisory capacity. The traffic department will be under T. C. Powell, vice-president, at Cincinnati, Ohio, and Lincoln Green, freight traffic manager of the Southern Railway, who has been promoted to vice-president, with headquarters at Washington, D. C. E. H. Coapman, vice-president and general manager of the Southern Railway, has been promoted to vice-president in charge of operation of all lines. G. R. Loyall, general superintendent of the middle district of the Southern Railway, has been promoted to assistant vice-president, with jurisdiction over all lines, under Mr. Coapman.

Thomas Benton Hamilton, whose election as resident vice-president of the Pittsburgh, Cincinnati, Chicago & St. Louis, with headquarters at St. Louis, Mo., was announced in these

columns last week, was born on August 7, 1865, at Columbus, Ohio. He graduated from Princeton University in 1888, and entered railway service in the same year as a rodman on the Jeffersonville, Madison & Indianapolis. From January, 1890, to January, 1896, he was an assistant in the engineering corps of the Pittsburgh, Cincinnati & St. Louis and from January, 1896, to May, 1897, assistant engineer on the Pittsburgh division of the same road. Between May, 1897, and April, 1898, he was engineer maintenance of way on the Toledo division of the Pennsylvania and from April, 1898, to April, 1900, he held the same position on the Cincinnati division of the Panhandle. From April, 1900, to June of the following year he was engineer maintenance of way on the Cleveland and Pittsburgh division of the Pennsylvania lines. From June, 1901, to December, 1903, he was superintendent of the Erie and Ashtabula division, following which he was transferred to the Cleveland and Pittsburgh division in the same capacity. On January 1, 1912, he was appointed general superintendent of the central system of the Pennsylvania Lines West and in January, 1914, was promoted to general manager of the Vandalia, with headquarters at St. Louis, Mo. His election as resident vice-president of the Panhandle became effective January 1.

Daniel Upthegrove, whose appointment as general solicitor of the St. Louis Southwestern, with headquarters at St. Louis, Mo., was made in these columns on December 8, was born in 1871, at



D. Upthegrove

Greenville, Tex. After studying law at Vanderbilt University, Nashville, Tenn., he engaged in private practice for a time. In 1889, he entered railway service with the St. Louis Southwestern, Texas Lines, as local attorney. In 1901, he was transferred to the office of the general attorney at Dallas, Tex. where he served in various capacities until his appointment as assistant general attorney in 1907. He continued in that position until his recent promotion to general solicitor for the entire system. The office of general solicitor, which had been

abolished under a former management, is now re-established by virtue of his appointment.

Operating

M. B. Casey, superintendent of car service of the Delaware, Lackawanna & Western at Scranton, Pa., has resigned.

F. J. Ginn has been appointed assistant to the general superintendent of the Chesapeake & Ohio, with headquarters at Huntington, W. Va.

O. F. Brookmeyer has been appointed supervisor of passenger transportation of the Cleveland, Cincinnati, Chicago & St. Louis with office at Indianapolis, Ind.

Percy Slater, trainmaster of the Southern Pacific at San Jose, Cal., has been appointed assistant division superintendent with headquarters at Bakersfield, Cal., succeeding J. H. Dodds, recently appointed superintendent of the Ogden Union Railway & Depot Company, Ogden, Utah.

J. S. Matson, superintendent of the Bessemer & Lake Erie at Greenville, Pa., has been appointed general superintendent, with office at Greenville, and A. D. Chittenden, assistant to general manager at Pittsburgh, has been appointed superintendent of transportation, with office at Pittsburgh.

Harry Selfridge, formerly connected with the mechanical department of the Nevada Northern, has been appointed assistant to the general manager of the Pacific & Idaho Northern, with headquarters at New Meadows, Ida., with general supervision over the mechanical department and such other duties as may be assigned to him by the general manager.

The following operating officers of the Queen & Crescent have had their jurisdiction extended over the New Orleans & North-eastern and the New Orleans Terminal Company, recently acquired by the Southern, effective January 9; E. G. Tomlinson, car accountant; W. S. Melton, superintendent of telegraph.

W. N. Foreacre, general superintendent of the eastern district of the Southern Railway has been promoted to general manager of the lines east, with headquarters at Charlotte, N. C. Horace Baker, general manager of the Cincinnati, New Orleans & Texas Pacific and the Alabama Great Southern, has been promoted to general manager of the lines west, with headquarters at Cincinnati, Ohio. (See Executive, Financial, Legal and Accounting.)

Ernest C. Wills, assistant to the general manager of the Missouri Pacific, with office at St. Louis, Mo., has been appointed superintendent of the Northern Kansas division, with headquarters at Atchison, Kans., succeeding W. E. Merrifield, in turn appointed superintendent of the Omaha division, with office at Falls City, Neb. J. F. Russ, division superintendent at Falls City, Neb., has been appointed superintendent of the White River division, with headquarters at Aurora, Mo., succeeding D. W. Hickey, resigned.

R. D. Fitzmaurice, whose appointment as assistant general superintendent of the Eastern Grand division of the New York, New Haven & Hartford, with headquarters at Boston, Mass.,



R. D. Fitzmaurice

has already been announced in these columns, was born on August 2, 1865. He began railway work in 1881 with the Intercolonial Railway, and in May, 1884, entered the service of the New York & New England, now a part of the New York, New Haven & Hartford, as a telegraph operator at Boston, Mass., and later served as train despatcher and chief despatcher. In 1903 he was appointed assistant superintendent of the Norwich division, and later served as trainmaster until August, 1912, when he was promoted to superintendent of the Western division at Waterbury, Conn.

He became superintendent of the Providence division of the New Haven in May, 1914, which position he held at the time of his recent appointment as assistant general superintendent of the Eastern Grand division of the same road as above noted.

Balthis Webb Browning, whose appointment as superintendent of terminals of the Norfolk & Western with headquarters at Norfolk, Va., as has already been announced in these columns, was born on December 26, 1873, at Oakland, Md., and was educated at High School. He began railway work in May, 1889, with the Norfolk & Western and has been in the continuous service of that road ever since. He served consecutively as yard clerk, yardmaster, and general yardmaster at Roanoke, Va., and in 1905 was appointed assistant trainmaster of the Shenandoah division. One year later he was transferred in the same capacity to the Norfolk division. He became terminal trainmaster at Norfolk in February, 1907, which position he held until the time of his recent appointment as superintendent of terminals of the same road, as above noted.

John H. Elliott, whose appointment as general manager of the Texas & Pacific with headquarters at Dallas, Tex., was announced in the issue of December 29, 1916, was born at Chatham, N. Y., on September 22, 1866. He began railway work in 1878, as a messenger on the Boston & Albany. In the following year he became an operator on the Boston, Hoosac Tunnel & Western, serving consecutively at Hoosac Falls, N. Y., Johnsonville, N. Y., and Mechanicville, N. Y. In 1880, he was employed by

the Missouri, Kansas & Texas as an operator at Durant, I. T., following which he was despatcher, chief despatcher and trainmaster. Subsequently he was employed on the Texas & Pacific, the St. Louis-San Francisco, the Kansas City, Pittsburg & Gulf and the Duluth, Winnipeg & Pacific in various capacities in the construction and operating departments. In 1914, he was appointed inspector of transportation of the Texas & Pacific, later being appointed superintendent and shortly thereafter general superintendent, which position he held at the time of his appointment as general manager.

Robert Culin White, engineer maintenance of way of the southern district of the Missouri Pacific, with headquarters at Little Rock, Ark., announcement of whose appointment as superintendent of the Memphis division, with office at Wynne, Ark., was noted in these columns last week, was born at Bertrand, Mo., February 8, 1881. He attended the University of Missouri and later entered West Point, leaving the latter institution in June, 1905, to take employment with the Missouri Pacific, where he was assigned to the engineering corps at the general office in St. Louis, Mo. From February, 1907, to November, 1909, he was assistant engineer and roadmaster on the Eastern, Central Kansas, and White river divisions of this same company, and from November, 1909, to April, 1914, he was assistant engineer, division engineer and general roadmaster on the Memphis, Central and Arkansas divisions of the southern district. In April, 1914, he was appointed engineer maintenance of way of the southern district, with office at Little Rock, Ark., and now becomes superintendent of the Memphis division, with headquarters at Wynne, Ark., effective January 1, as noted above.

D. M. Sheaffer, district passenger solicitor of the Pennsylvania Railroad at New York, has been appointed express agent of the lines east of Pittsburgh and Erie with headquarters at Philadelphia, Pa., and will have charge of all matters pertaining to express traffic over the lines of the Pennsylvania Railroad. Mr. Sheaffer was born on September 20, 1885, at Pittsburgh, Pa., and attended the Osceola public school of Pittsburgh, the Bordentown, N. J., Military Institute and the University of Pennsylvania. He entered the service of the Pennsylvania Railroad in June, 1908, as clerk in the redemption department and the passenger rate room in the general office at Broad street station, Philadelphia. In 1911 he was appointed tariff inspector of the passenger department and the following year was made tourist agent. He was appointed district passenger solicitor in March, 1913, at Philadelphia, and on November 1, 1915, was transferred in the same capacity to New York, which position he held at the time of his recent appointment as express agent of the same road as above noted.



D. M. Sheaffer

Traffic

L. J. Rouleau has been appointed commercial agent of the Grand Trunk with office at Quebec, Que.

J. W. Kelly has been appointed commercial freight agent of the Baltimore & Ohio, with office at Boston, Mass., succeeding W. F. Richardson, promoted.

J. L. Darragh, soliciting freight agent of the Nashville, Chattanooga & St. Louis at Nashville, Tenn., has been appointed commercial agent with office at Chattanooga, vice E. W. Scofield, transferred to special duties.

J. C. Spencer, traveling freight agent of the Macon, Dublin & Savannah at Jacksonville, Fla., has been appointed general agent, with headquarters at Dublin, Ga., vice N. H. Rahn, resigned to accept service with another company.

E. W. Bennett has been appointed general agent of the New York Despatch Refrigerator Line, the National Despatch Refrigerator Line and the Chicago, New York & Boston Refrigerator Company, with headquarters at Milwaukee, Wis.

E. E. Peacock, general agent of the Gulf Coast Lines, with headquarters at Dallas, Texas, has been appointed general western agent of this company, with offices in both Los Angeles, Cal., and San Francisco. C. F. Norton has been appointed commercial agent at San Francisco, reporting to Mr. Peacock. Charles N. Gray succeeded E. E. Peacock as general agent at Dallas, Texas, being in turn replaced by J. W. Williams. These appointments are effective February 1, 1917.

Charles H. Morehouse, whose appointment as general eastern freight agent of the Atchison, Topeka & Santa Fe, with headquarters in New York City, was announced in these columns last week, was born on March 23, 1861, at Evansville, Wis. He entered railway service with the Chicago & North Western in August, 1881, as a clerk in the local freight office at Evansville. From August, 1882, to July, 1886, he held a position as local freight clerk on the Atchison, Topeka & Santa Fe at Socorro, N. M., and from July, 1886, to November, 1889, he was agent at Deming, N. M., and Albuquerque. In November, 1889, he was appointed division freight agent, with office at El Paso, Tex., and in July, 1904, transferred with the same title to Denver, Colo., which position he continued to hold until his promotion to general eastern freight agent, effective January 1, 1917.

Roscoe Morrow Bachellor, who was appointed general freight and passenger agent of the Atchison, Topeka & Santa Fe at St. Joseph, Mo., as was announced in these columns last week, was born at Somerset, Ky., on September 27, 1857. He attended Kansas State Normal School at Emporia, Kan., and entered railway service in April, 1881, with the Atchison, Topeka & Santa Fe as a cashier at Albuquerque, N. M. From September, 1881, to October, 1888, he was terminal agent during the construction of the Atlantic & Pacific, now a part of the Santa Fe coast lines, serving at several places in the States of New Mexico and Arizona. During this period he also was agent at Ash Fork, Ariz., and at Kiowa, Kan., and traveling auditor, station agent and commercial agent at Pueblo, Colo. From 1888 to 1890 he was assistant general freight agent and then general agent of the passenger department at Albuquerque. In 1900 he was transferred to Detroit, Mich., as commercial agent and in September of the following year he was appointed general agent at St. Joseph, Mo., being subsequently promoted to division freight agent with the same headquarters. His present appointment as general freight and passenger agent as noted above became effective on January 1, 1917.



R. M. Bachellor

E. R. Bardgett, commercial agent of the Lehigh Valley at Cleveland, Ohio, has been appointed general eastern agent of the Chicago & Alton at New York City. Mr. Bardgett has been in the service of the Lehigh Valley for 23 years. During the past ten years he has served at various western places as traveling freight agent.

Engineering and Rolling Stock

S. D. Bacon has been appointed division engineer of the Texas & Pacific, with headquarters at Marshall, Tex., succeeding H. P. Moberly, resigned.

F. von Sprecken, first assistant engineer of the Atlantic Coast Line at Savannah, Ga., has been appointed division engineer with headquarters at Waycross, Ga.

Orrville C. Wright, assistant engineer of motive power, Northwest system, of the Pennsylvania Lines West, at Ft. Wayne Ind., has been appointed assistant engineer of motive power of the Lines West, with office at Pittsburgh, Pa.

The following officers of the Queen & Crescent have had their jurisdiction extended over the New Orleans and Northeastern and the New Orleans Terminal Company, recently acquired by the Southern, effective January 9: Curtis Dougherty, chief engineer maintenance of way and structures; G. H. Gilbert, engineer of bridges; D. M. Case, superintendent of signals; W. S. Andrews, general superintendent of motive power.

Grover C. Nichols, whose appointment as superintendent of motive power and equipment of the Alabama, Tennessee & Northern, with headquarters at York, Ala., has already been announced in these columns, was born on September 19, 1885, at Jonesboro, Ark., and was educated in the public high schools. He began railway work on June 9, 1902, as call boy on the St. Louis Southwestern. The following year he became machinist apprentice, and from June, 1907, to March, 1911, he was machinist. He was then appointed master mechanic of the Jonesboro, Lake City & Eastern, at Jonesboro, Ark., remaining in that position until October, 1912; the following month he returned to the service of the St. Louis Southwestern as roundhouse foreman. On September 1, 1913, he was appointed master mechanic of the Alabama, Tennessee & Northern, which position he held until his recent promotion as superintendent of motive power and equipment on the same road.

Albert Arthur Miller, who has been appointed district engineer maintenance of way of the St. Louis, Iron Mountain & Southern, with office at Little Rock, Ark., was born at Zanesville, Ohio, on September 28, 1879. He was graduated from Ohio State University in 1902, and immediately entered railway service with the Baltimore & Ohio, as an assistant engineer on the Wheeling division, being later transferred in the same capacity to the Cleveland division. He was later assistant engineer maintenance of way at Baltimore, Md., and division engineer of the Philadelphia division at Philadelphia, Pa. In September, 1907, he was appointed chief engineer of the West Coast Company of Mexico, with headquarters at Los Angeles, Cal., and in June, 1909, became assistant engineer in the office of the chief engineer maintenance of way of the Missouri Pacific at St. Louis, Mo. From December, 1910, to June, 1911, he was division engineer in charge of the Kansas City terminals, and from June, 1911, to December, 1916, he was division engineer and general roadmaster of the Missouri division of the St. Louis, Iron Mountain & Southern. As district engineer maintenance of way he succeeds R. C. White, who has been promoted to division superintendent at Wynne, Ark.

OBITUARY

Charles T. Turner, who was master mechanic at the Mount Clare shops, Baltimore, Md., of the Baltimore & Ohio, from 1903 to 1911, died on January 7, in Baltimore. Mr. Turner had been on the pension roll of the B. & O. since 1911, and prior to his retirement had been in the active service of the company for about 50 years.

Herbert E. Bucklen, Sr., president of the St. Joseph Valley Railway, died at his home in Chicago on January 10. Mr. Bucklen was born on July 19, 1848, at Dunkirk, N. Y., and was the builder and principal owner of the St. Joseph Valley, and prior to the building of that road Mr. Bucklen built and operated the Elkhart & Western.

Corydon Wheeler Card, assistant superintendent of the employment department of the Chicago, Burlington & Quincy, with headquarters at Chicago, Ill., died at his home in Aurora, Ill., January 16. He was born at Gainesville, N. Y., September 14, 1842, and entered railway service with the Burlington as station agent in 1864. From 1864 to 1887 he was consecutively freight brakeman, freight conductor and passenger conductor, and from 1887 to 1905 he was train master at Aurora, Ill., being then appointed assistant superintendent with the same headquarters. In January, 1910, he was made assistant superintendent of the employment department, in which capacity he served until his death. He was continuously in the employ of this one company for a period of 53 years.

Equipment and Supplies

LOCOMOTIVES

THE WABASH PITTSBURGH TERMINAL is in the market for 3 Consolidation locomotives.

THE BALDWIN LOCOMOTIVE WORKS will build one four-wheel switching locomotive for its own uses.

THE SEABOARD AIR LINE has issued inquiries for 20 Santa Fe and 10 Mallet (2-8-8-2) type locomotives.

THE LEHIGH VALLEY is understood to be contemplating the purchase of a large number of locomotives.

THE ANACONDA COPPER MINING COMPANY has ordered three locomotives from the Baldwin Locomotive Works.

THE CENTRAL CUNAGUA (Cuba) has ordered one four-wheel fireless locomotive from the Baldwin Locomotive Works.

THE CHICAGO, BURLINGTON & QUINCY has ordered one six-wheel switching locomotive from the Baldwin Locomotive Works.

THE NEWBURGH & SOUTH SHORE has ordered one eight-wheel and 3 six-wheel switching locomotives from the Baldwin Locomotive Works.

THE SUBURBAN GAS & ELECTRIC COMPANY, Chester, Pa., has ordered one four-wheel switching locomotive from the Baldwin Locomotive Works.

THE BUFFALO, ROCHESTER & PITTSBURGH.—An unconfirmed report says that this company has placed an order with the American Locomotive Company for 30 locomotives.

THE ROBLA RAILWAY has ordered one eight coupled tank locomotive from the American Locomotive Company. This locomotive will have 16 by 24 in. cylinders, 48 in. driving wheels and a total weight in working order of 118,000 lb.

THE CHICAGO, TERRE HAUTE & SOUTHEASTERN has ordered 2 Consolidation locomotives from the American Locomotive Company. These locomotives will have 25 by 32 in. cylinders, 61 in. driving wheels and a total weight in working order of 244,000 lbs.

THE WESTERN STEEL CAR & FOUNDRY COMPANY has ordered one six-wheel switching locomotive from the American Locomotive Company. This locomotive will have 20 by 26 in. cylinders, 50 in. driving wheels and a total weight in working order of 129,000 lb.

THE PENNSYLVANIA EQUIPMENT COMPANY, Philadelphia, is in the market for two second-hand Consolidation locomotives, weighing about 60 tons and with a rigid wheel base of not over 13 ft. The same company also wishes one 50 to 55 ton ten wheel locomotive.

THE NEW YORK, NEW HAVEN & HARTFORD was reported in last week's issue as having ordered 40 Santa Fe type locomotives from the American Locomotive Company. This order has since been increased to 50. These locomotives will have 30 by 32 in. cylinders, 63 in. driving wheels, and a total weight in working order of 368,000 lb.

THE NORTHERN PACIFIC has ordered 20 Santa Fe and 5 Mallet type locomotives from the American Locomotive Company. The Santa Fe type locomotives will have 28 by 30 in. cylinders, 63 in. driving wheels and a total weight in working order of 320,000 lb. The Mallet type locomotives will have 26 and 40 by 30 in. cylinders, 57 in. driving wheels, and a total weight in working order of 456,000 lb.

THE SOUTHERN PACIFIC has ordered 24 Santa Fe type locomotives from the American Locomotive Company, and 9 six-wheel switching locomotives from the Baldwin Locomotive Works. Of the Santa Fe engines, 23 will have 27½ by 32 in. cylinders, 63 in. driving wheels and a total weight in working order of 344,000 lb. The other will have 26½ by 32 in. cylinders, 57 in. driving wheels and a total weight in working order of 341,000 lb.

FREIGHT CARS

THE ITALIAN STATE RAILWAYS are reported as inquiring for 4,000 cars.

THE MADRID, SARAGOSSA & ALICANTE is asking for prices on 600 gondola cars.

THE STANDARD OIL COMPANY OF INDIANA is in the market for 40 to 50 gondola cars.

THE JAVA STATE RAILWAYS have ordered 400 freight cars from the Standard Steel Car Company.

THE NORTHERN RAILWAY OF SPAIN is getting prices in this country on 1,500 20-ton freight cars.

THE CHICAGO, BURLINGTON & QUINCY has ordered 1,500 gondola cars from the Pressed Steel Car Company.

THE PENNSYLVANIA EQUIPMENT COMPANY, Philadelphia, is in the market for 50 to 100 second hand Rodger or other ballast cars.

THE FRENCH GOVERNMENT, reported in last week's issue as having issued inquiries for 20,000 freight cars, is reported as having placed orders for 3,000 of these cars.

THE ILLINOIS CENTRAL, reported in the *Railway Age Gazette* of November 17 as inquiring for 500 furniture cars, has ordered 500 automobile furniture cars from the Standard Steel Car Company.

THE MAINE CENTRAL, reported in the *Railway Age Gazette* of December 22 as having issued inquiries for 50 produce, 200 rack and 50 hopper cars, has ordered these cars from the Standard Steel Car Company.

PASSENGER CARS

THE RICHMOND, FREDERICKSBURG & POTOMAC is inquiring for 2 coaches.

IRON AND STEEL

THE UNION PACIFIC has ordered 32,000 tons of rails from the Illinois Steel Company.

THE BESSEMER & LAKE ERIE has ordered 8,000 tons of rails from the Carnegie Steel Company.

THE PITTSBURGH & LAKE ERIE has ordered 10,000 tons of rails from the Carnegie Steel Company.

THE LOS ANGELES & SALT LAKE is in the market for about 200 miles of 90-lb. steel rail for the second half of 1917.

THE ATLANTIC COAST LINE has issued an inquiry for 5,000 to 6,000 tons of steel for a bridge across the James River, near Richmond, Va.

THE DELAWARE, LACKAWANNA & WESTERN has ordered 25,000 tons of rails from the United States Steel Corporation and 10,000 tons of rails from the Bethlehem Steel Company.

MACHINERY AND TOOLS

THE MAINE CENTRAL has placed orders for about \$15,000 to \$20,000 worth of machinery.

THE CHICAGO, BURLINGTON & QUINCY has asked for bids on a number of machine tools.

THE CHICAGO, ROCK ISLAND & PACIFIC has ordered about \$50,000 to \$60,000 worth of machine tools.

THE UNION PACIFIC has recently made some purchases of machine tools and has issued some new inquiries.

MISCELLANEOUS

THE PITTSBURGH & LAKE ERIE has awarded a contract to the Roberts & Schaefer Company, Chicago, for a fireproof transfer plant, to be built alongside of the 900-ton coaling station, which this company has under construction at Haselton, Ohio. This plant is to be used for the transfer of coal, stone, sand, etc., from bad-order cars to good cars.

Supply Trade News

John O. Pew, for four years president and general manager of the Youngstown Iron & Steel Company, Youngstown, Ohio, has resigned.

H. D. Gumpper, until recently associated with the Emerson Company, efficiency engineers, is now associated with W. F. Hebard in the electric truck sales department of The Buda Company, Chicago.

Edward M. Hallett has resigned as secretary of the Bell Locomotive Works, 30 Church Street, New York, but will continue as treasurer of the company. Stanley McCormack, manager of sales, succeeds Mr. Hallett as secretary.

At a meeting of the board of directors of the Crucible Steel Company of America, held in Pittsburgh January 16, Herbert DuPuy, chairman of the board, was also elected temporary president. He will continue to hold the office of chairman.

J. K. Howard, formerly assistant chief engineer of the Lorain, Ashland & Southern, has accepted a position with the A. G. A. Railway Light & Signal Company, Inc., Elizabeth, N. J., as that company's northwestern representative. He will have headquarters at Room 857, Peoples Gas Building, Chicago.

William A. Field, for the past 13 years general superintendent of the Illinois Steel Company, at South Chicago, Ill., has resigned, effective February 1, to become general manager of the United Alloy Steel Corporation, Canton, Ohio. Peter A. Newton, who for ten years has been Mr. Field's assistant, will succeed him as general superintendent.

H. D. Savage, vice president of the American Arch Company, in addition to his present duties, has been appointed manager of sales of the industrial department of the Locomotive Pulverized

Fuel Company, with office at 30 Church street, New York. Mr. Savage was born in 1880 at Memphis, Tenn. He was educated in the public schools at Ashland, Ky., and at the Kenyon Military Academy. In 1897 he entered the manufacturing department of the Ashland Fire Brick Company and served in various capacities up to 1904, at which time he was appointed manager of sales. In 1914 he was elected vice president of the American Arch Company which position he will still hold in addition to his new appointment, above noted.



H. D. Savage

The Chicago district territory of the Adams-Bagnall Electric Company of Cleveland, Ohio, has again been placed in charge of Van N. Marker, with headquarters in Machinery Hall, 549 West Washington boulevard, Chicago. Mr. Marker was associated with the Chicago district office of the Adams-Bagnall Electric Company for approximately seven years, up to March, 1916.

Ellis J. Hannum, secretary of the Newton Machine Tool Works, Inc., Philadelphia died January 7. Mr. Hannum had been in the service for 29 years. He entered the employ of the company as a boy and was most closely associated with the drafting and engineering departments. During the past two years, failing health caused him to relinquish his active duties in the engineering department, and during this time he acted in an advisory capacity to the advertising department.

Effective January 1, 1917, the business heretofore conducted under the name of the Railway Supply & Equipment Company,

of Atlanta, Ga., will be continued under the name of the Bradford Draft Gear Company, the Bradford Draft Gear Company having purchased and taken over the business of the Railway Supply & Equipment Company. All contracts and agreements with the Railway Supply & Equipment Company will be taken care of by the Bradford Draft Gear Company. The management of the new company will be the same as the old.

Alexander R. McAlpine, special representative of Bird & Son, died at his home in Chicago on January 14. Mr. McAlpine was born at North Framingham, Mass., in 1850, and went west when he was 20 years old, going to the Bee Line, now a part of the Big Four. During his 15 years with that road he was master mechanic and master car builder. In 1885 he went to the Western Car Company as superintendent. After 15 years with that company he went to the Burton Stock Car Company, and in February, 1902, Bird & Son. Mr. McAlpine was well known in the railroad field in and about Chicago, and was actively connected with the Car Foremen's Association of Chicago for several years.

Charles Cyrus Ramsey, president of the Crucible Steel Company of America, died January 11, at Pittsburgh, following an attack of pneumonia, contracted five weeks ago. Mr. Ramsey

was born in Allegheny City, February 25, 1862. He started his business career as stenographer in the office of the assistant general freight agent of the Pennsylvania Company. When 23 years of age, he left the employ of the railroad and became a stenographer in the office of Park Brothers & Co., Ltd., then the largest manufacturers of crucible steels in this country. Gradually he rose from one position to another until he became manager of their Philadelphia branch, and then manager of the New York branch in charge of the entire eastern district.



C. C. Ramsey

He held this position until the organization of the Crucible Steel Company was completed in 1900, when Park Brothers & Co., Ltd., or rather their successor, the Park Steel Company, was absorbed into the present Crucible Steel Company of America. Serving for a time with R. E. Jennings in the management of the eastern business of the company, he was shortly made, on Mr. Jennings' retirement, fourth vice president and permanent manager of the eastern office. In the winter of 1910 the death of Frank B. Smith, then president of the Crucible Steel Company, caused a vacancy. Mr. Ramsey was called to Pittsburgh as assistant to the president, which latter office was then temporarily held by Mr. DuPuy. The board soon recognized Mr. Ramsey's ability and in July, 1910, he was unanimously elected president of the Crucible Steel Company, and, soon thereafter, of its affiliated companies; these positions he held until his death.

Wharton Steel Company Sold to J. Leonard Replogle

The sale of the properties of the Wharton Steel Company to J. Leonard Replogle, vice-president of the American Vanadium Company, was completed January 13.

In the latter part of 1915 N. L. C. Kachelmacher and others took an option on the Wharton Steel Company properties at \$1,500,000. This option was exercised in January, 1916, but owing to complications no actual transfer of the property ensued, before the last deal was put through it is understood that a trust company secured a release of any claim that Kachelmacher and his associates had by virtue of their option. The negotiations were then directly between the Wharton executors and the new owners. The properties include two large blast furnaces and a smaller one, the Wharton Northern Railroad, the Hibernia mine near Wharton, N. J., and smaller mines in the same group,

including the Allen-Teabo, Orchard, Scrub Oaks and Mount Pleasant—in all about 5,000 acres of iron ore lands. The Hibernia, which is the largest mine, has reserves estimated at 4,000,000 to 5,000,000 tons of ore. The Kachelmacher syndicate at one time had plans for by-product ovens and an open-hearth steel plant.

It is said that plans contemplating an outlay involving from \$10,000,000 to \$15,000,000 for steel mills are under consideration. Meanwhile the three furnaces are undergoing repairs and will soon be in blast. The Wharton Northern Railroad has never ceased operating.

These properties were gotten together by the late Joseph Wharton, one of the originators of the Bethlehem Steel Company. Since Mr. Wharton's death this group of Wharton properties has been managed by Harrison Morris and Bertram Lippincott of Philadelphia.

Gould Coupler Company Wins in Car Lighting Patent Case

The circuit court of appeals for the second district has handed down a decision in the case of Safety Car Heating & Lighting Company v. Gould Coupler Company, in which it holds that the Gould "Simplex" system of electric car lighting is not an infringement of the H. G. Thompson patent No. 1,070,080, owned by the Safety Car Heating & Lighting Company.

Westinghouse Air Brake and Union Switch Merger

The plan for the merger of the Union Switch & Signal Company into the Westinghouse Air Brake Company was formally declared effective January 12. At a special meeting of the board of directors of the Air Brake company it was announced that practically all of the stock of the Union Switch & Signal Company had been deposited in assent of the plan.

Later a meeting of the directors of the Switch company was held for the purpose of reorganization and giving Air Brake officers representation on the board of directors.

The officers of the company as chosen are as follows: Chairman of the board, W. D. Uptegraff, formerly president of the Union Switch & Signal Company; president, A. L. Humphrey, first vice-president and general manager of the Air Brake company, vice-president, John F. Miller, president of the Air Brake Company; vice-president and treasurer, T. W. Siemon, formerly vice-president of the Signal company; vice-president in charge of sales, G. A. Blackmore, formerly manager of sales of the Signal company; acting vice-president and secretary, T. S. Grubbs, formerly secretary of the Signal company; controller, C. A. Rowan, controller of the Air Brake company; auditor, F. V. Shannon, formerly auditor of the Signal company; assistant treasurer, M. K. Garrett, who was associated with George Westinghouse's private office in an accounting capacity for 25 years.

The directors of the Air Brake company have called a special meeting of stockholders for March 15 to ratify the merger and also to approve an increase in the capital of the company from \$20,000,000 to \$30,000,000 to finance the transaction. Out of the increased capital it is proposed to declare a stock dividend of 20 per cent to holders of Air Brake stock, including the shares exchanged for the stock of Union Switch & Signal Company.

TRADE PUBLICATIONS

FLOOD LIGHTING.—The Crouse-Hinds Company, Syracuse, N. Y., gives data and prices on "Imperial" flood light projectors in its bulletin No. 301.

MERCURY VAPOR LAMPS of the indoor type for alternating currents are described in bulletin No. 66 of the Cooper-Hewitt Electric Company, Hoboken, N. J.

POWER HAMMERS.—The United Hammer Company, Boston, Mass., has issued a small 16-page booklet describing and illustrating its line of Fairbanks power hammers.

AUTOMATIC SAFETY DISCONNECTING HANGERS for lamps suspended in inaccessible places are described in a bulletin issued by the Thompson Electric Company, Cleveland, Ohio.

MACHINE TOOLS.—The Gisholt Machine Company, Madison, Wis., has recently issued a 16-page booklet containing reprints of a number of full page advertisements that appeared in the American Machinist.

Railway Construction

CHICAGO & ALTON.—This company will double-track its road from Kansas City, Mo., to Rock Creek, Mo., a distance of 10 miles, in the early spring. While it is the general plan to double-track the entire division, nothing definite will be undertaken in this connection during 1917. The approximate cost of this ten-mile improvement will average \$25,000 per mile.

EAGLE PASS & GULF.—The construction of this road is projected between Eagle Pass, Tex., and Aransas Pass, by way of Dimmit, La Salle, McMullen, Oakville, Beeville and Rufugio, about 200 miles. The promoters will assume the general contracts themselves, of which the first 100 miles will be let in the near future, but will sublet to smaller contractors in the main. A permit will be asked from the state of Texas for the acquisition of the Asherton & Gulf, a small line running between Asherton and Artesian Wells, a distance of about 28 miles. It is estimated that the maximum grade will average 0.7 per cent and the maximum curve four deg. R. H. Phillips, chief engineer, and C. E. Hanon, chairman of the board, St. Louis, Mo.

KENTUCKY ROADS.—The Mowbray-Robinson Company will build a 15-mile railroad, it is said, from Krypton, Ky., to undeveloped coal fields, at Troublesome Creek. W. G. Denham, engineer, Krypton.

MOBILE, VOLANTA & PENSACOLA.—Plans are being made by this company, it is said, to build a line between Gabel, Ala., and Elberta, about 23 miles. The headquarters of the company are at Mobile, Ala.

NASHVILLE, CHATTANOOGA & ST. LOUIS.—Plans for building 13 miles of new railroad into the coal-producing section of Grundy county have just been approved and construction work will be started at once. The new line will be an extension of the Tracy City branch and will extend from the present terminus at Coal-mont, Tenn., northeasterly to Mill Creek, near Tatesville. The preliminary survey for this extension was made over a year ago.

UNION PACIFIC.—Contracts have been let for the completion of double track between Council Bluffs, Iowa, and Granger, Wyo., as follows: From Archer, Wyo., to Pine Bluffs, 33.35 miles to the Phelan-Shirley Company, Omaha, Neb.; for the two sections from Point of Rocks, Wyo., to Wamsutter, 51.89 miles and from Hermosa to Buford, 11.11 miles to the Utah Construction Company, Salt Lake City, Utah. The latter work includes the construction of a tunnel about 1,800 ft. long to be constructed adjacent to the present single track tunnel at a cost of \$500,000. The total cost of the double tracking work including the tunnel will be about \$4,120,000.

RAILWAY STRUCTURES

NORFOLK, VA.—Work on a new passenger terminal in Norfolk will be started soon, it is said, by the Atlantic Coast Line. A contract for the building has been let to the A. M. Walkup Company, Richmond.

OMAHA, NEB.—The Union Pacific will carry out improvements during 1917 to include the construction of new shops, round-house facilities, coaling stations, etc., at a cost of \$3,000,000. Plans for this work have not yet been completed except for a new power house and extensions to shops at Omaha, to cost \$656,000.

SUPERIOR, WIS., GREAT FALLS, MONT., AND ST. CLOUD, MINN.—Contracts have been let by the Great Northern to Westinghouse, Church, Kerr & Co., for the erection of additions to its machine shops at Superior, Wis. The contracts cover both the design and construction, for which no definite plans have as yet been approved. The Great Northern also let a contract to the Grant Smith Company to enlarge the machine shop at Great Falls, Mont., to double its present capacity. About \$1,000,000 will be spent at this latter point. A little later on in the year it is expected to enlarge the present shop facilities at St. Cloud, Minn., but it is not known just how extensive these improvements will be nor what expenditure will be involved.

Railway Financial News

CHICAGO & NORTH WESTERN.—The Railroad Commission of Wisconsin has approved the proposed issue of \$15,250,950 stock of the Chicago & North Western.

DENVER & RIO GRANDE.—Judge Hand, in the Federal district court, has continued the injunction against the removal of cash on deposit in New York of the Denver & Rio Grande pending a suit by the bondholders of the Western Pacific, which bonds are guaranteed by the Denver & Rio Grande.

NASHVILLE, CHATTANOOGA & ST. LOUIS.—This company's fiscal year has been changed from the year ending June 30 to the year ending December 31. The date of the annual meeting of stockholders has been changed from the second Tuesday in October to the second Tuesday in April.

QUANAH, ACME & PACIFIC.—A correspondent in Quanah, Tex., writes that it is reported there on trustworthy authority that the Quanah, Acme & Pacific is to be taken over by the St. Louis & San Francisco. The Quanah, Acme & Pacific runs from Quanah, Tex., west to MacBain, 92 miles.

PENNSYLVANIA RAILROAD.—Stockholders are to be asked on March 13 to approve of the issue of \$75,000,000 additional bonds.

VALDOSTA, MOULTRIE & WESTERN.—The railroad property of this company is to be sold under foreclosure on January 20, and the other property, including terminals at Valdosta, is to be sold on February 6.

SLEEPING CARS ON BRITISH RAILWAYS.—There are 150 sleeping cars on British railways, of which 53 are jointly owned by the three companies that form the East Coast route, 46 belong to the London and North-Western, 23 to the Midland, 14 to the Great Western, 12 to the Caledonian, and 2 to the Highland.

THE LEADING COAL NATION.—American records show that in 1810 the United States produced 20 tons of coal. In 1820 the total had risen to 3,080 tons; in 1830 to 285,739 tons; in 1840 to 6,266,233 tons; and in 1850 to 11,541,672 tons. In 1860 there had been a further advance to 14,721,439 tons; and in 1870 to 41,861,679 tons. Another ten years witnessed a still further rise to 63,822,830 tons; and in 1890 an aggregate of 141,866,931 tons was reached. The first year of the new century produced 240,789,310 tons, and this aggregate was carried in 1910 to 447,853,009 tons. The latest complete year of which statistics are available (1914) showed the vast output of 458,504,890 tons.

PURCHASE OF THE CHILLAGOE RAILWAY.—The Chillagoe Railway has been bought by the Government of Queensland for \$2,187,000. This railway is 103 miles long, and it has three branches, two of which belong to the state, which was in the anomalous position of having to depend on the privately owned Chillagoe Railway to link up with the general government system. The third branch, the Mt. Mulligan line, was owned by the Chillagoe Company, and it is surmised that it is comprised in the deal. The 103 miles of the Chillagoe line, added to the 30 miles of the Mt. Mulligan line, make 133 miles of line probably comprised in the deal.—*The Engineer, London.*

JAPANESE SHIPBUILDING.—The Japanese Government is considering the question of reducing the national assistance extended to shipbuilding. The assistance hitherto given was afforded so opportunely that when the great war broke out in Europe and many ships were diverted from commercial to naval purposes by the belligerents, Japanese shipowners made great profits. The highly remunerative freight rates earned by ships have been even a greater stimulus to the growth of Japanese shipping than the Government subsidies granted. This growth has, however, resulted in a heavy increase in the amount which the Government is now called upon to pay to shipbuilders. In 1914 these payments amounted to \$815,000, in 1916 they will be \$1,561,000, and next year they are expected to be about \$2,900,000. It is not surprising, accordingly, that the Japanese Treasury is casting about for some relief.—*Engineering, London.*